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The pocket is the computer?

When we were all just a shade younger, computers were mainframes and minis — locked away in "glass houses" in corporations, visited by

large MIS departments and cooled by heavy-duty cooling systems.

Of course, today we don't think twice about shoving powerful computers into our briefcases or our very pockets, taking massive computing power with us wherever we go. And while polymer and cordless may really be making a comeback, the old ways of centralized, location-based computing never will.

Moreover, the near-future is destined to be just as revolutionary as the present. But it doesn't take a crystal ball to catch the main themes: faster, smaller, more powerful, more pervasive.

The over-flogged slogan of the industry leaders used to be "hand it to them." Consider: "Information at your fingertips," "The network is the computer," "Where do you want to go today?" The phrase may be cute, but the reality is: Computing isn't just key to our infrastructure, it's well on its way to becoming integrated into nearly every facet of our lives.

This technology is enabling societal trends such as telecommuting, or more aptly perhaps — telework. I had the privilege of introducing Bob Fortin, president of the Canadian Telework Association, at the recent Convergence '98 show in Calgary. He defines telework as "employees performing part or all of their work from remote locations, usually from home." According to Statistics Canada, more than one million Canadians already qualify, and that number is expected to jump to 1.5 million by 2001. Fortin said half of the jobs in the nation are at least partly "teleworkable."

The positive aspects of telework for employees include flexible hours, freedom of residence, less commuting, potential tax benefits, reduced childcare costs and more time with family. Organizations report more productivity and better morale from employees, as well as reduced overhead.

These workers are demanding sophisticated technology, in the form of processing power, capable peripheries and fast, reliable communications connections. Even the so-called "entry-level" systems are quite remarkable for their sheer com-

puting strength. For our picks of notable entry PCs, see this issue's CCW Lab Test, on page 34.

Teleworkers also need serious support. Technology support by its very nature can seem a somewhat thankless job — at least, ours are unhappy because they're encountered problems with their technology. But never underestimate the power of positive support. Users who have their problems handled skillfully, sensitively and quickly can be rapidly transformed into the epitome of "satisfied customers." Sadly, this industry still has a lot of work to do on that front. See our special feature on service by contributor Paul Lema, "A Question of Service," page 28.

Like most technologies, many of the slogans at Canada Computer Paper Inc. are either focused on technology-wise, with all things small. On any given day, expect to see us toying with some sort of computing device that fits into a briefcase, a purse or a pocket. This issue's hardware feature focuses on handhelds and PDAs. (Please see "A fondle for the handheld?" on page 26, by Associate Editor Jeff Evans.) We're not alone in our interest in the category. It's no accident we see the number of personal computers proudly sporting some sort of handheld computer these days, particularly the Palm Pilot. And with such enthusiasm? Their longevity seems only that of the Mac desktops in their heyday. I've pondered the wraith of Palm owners in the line and can only attribute it to an appreciation of a genuinely useful computing device, further warmed by the still-undeniable "fend-it" factor. What other computer really doubles as a Star Trek tricorder? (I'm not kidding, you can download the program, complete with tricorder beeper.)

But I don't rule out the Windows CE platforms. User-friendly enhancements are arriving in the second version of the operating system, and demonstrated thought is going into some of the new products.

There's still a little niggling in the minds of consumers, pining purely against size and weight. Someday miniaturization will virtually eliminate the idea of "fend-it" on this front. Meanwhile, it's fascinating to watch the manufacturers struggle to deliver the optimal mix of function and form.

Enjoy the issue!

Graeme Cameron
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Fujitsu IS a player!

I was quite disappointed when looking at CCW's April '98 printer feature (page 38), and not seeing Fujitsu listed as one of "The Players."

In fact, Fujitsu PrintPartner lasers have received Editor's Choice awards and accolades from two of our sister publications — *The Computer Player* and *Toronto Computer*.

Our products enjoy a reputation for quality and reliability beginning with the Fujitsu workhorse desktop printer family, one of the leading Canadian brands for more than 18 years. Our PrintPartner laser printers continue this tradition, and have quickly become recognized for their attractive price-performance, as well as offering one of the lowest costs of ownership in their category. With even faster and more feature-rich lasers on the horizon, we expect to be a player for many years to come.

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Windows 95 can't beat the Mac OS

I just read (Brian Connors' column "Windows 95: A step up, but modestly so," CCW April page 52). Once again, Microsoft is at it with a replacement operating system, and is also getting further behind Apple's innovations, and user empowerment. Why OS 9.1? Why do people write so much about a Windows system "upgrade" when there is so little to talk about?

You didn't even about the "new" support for multiple displays. You probably already know that this has existed on the Macintosh for a long time. The first Mac I worked on was a fix — with two monitors. This was 18 years ago!

Anyway, I totally switched to Macintosh a couple of years ago and since then time, I spend a lot more time using and enjoying the Mac, rather than trying to make a Windows-based machine work properly with a clunky operating system. But again, nobody writes about this.

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Don't take customers for granted

I wanted to drop you a note to thank you for the excellent article "Building Customer Relationships" (CCW January by Martin Kerr page 58). I recently started a new VAR business in Abbotsford, B.C., and one of the main goals was to be customer-oriented.

This philosophy should be a self-evident truth for when you look around at the various VARs and computer retailers out there (I won't name names) it's amazing how often the customer is taken for granted. Hopefully our business can take advantage of this event in the marketplace and serve out a note for ourselves.

Todd Seavater
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Letters To The Editor

We welcome your letters on industry news and comments, as well as your comments on our magazine. We reserve the right to edit your contributions for length and clarity. Please write to The Editor, via e-mail at ccw@top.ca, or fax (504) 658-3898.

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SAP delivers "fixed cost" 16-week solution

SAP Canada Inc., a provider of off-the-shelf, business applications for enterprises, is offering a packaged version of its technology, called *SAP Accelerated Enterprise and Accelerated Financials*.

While the SAP average implementation these days takes about eight months, this packaged solution can be implemented in 16 weeks at one fixed cost, said Pat Hickey, director of accelerated solutions for SAP Canada. The exact cost structure hasn't been announced yet, but it's meant to attract organizations as small as \$10 million in annual revenues. SAP's implementation partners for this solution include MCS, Deloitte & Touche, OracleLogic and IBM, and hardware partners, including IBM, Compaq, Digital and HP.

Sun Microsystems files two injunctions against Microsoft

(NR) — Saying company experts have just finished examining Microsoft's latest implementation of Java in Windows 98, Sun Microsystems Inc. announced requests for two preliminary injunctions based on alleged violations of a Java licensing agreement.

It asks that court prevent Microsoft from shipping Windows 98. Sun wants Microsoft to

change Windows 98 to meet its original licensing agreement. Alan Bonds, president of Sun's Java Software division, said Sun demands "One, that Microsoft ship Windows 98 with a fully compatible version of the Java technology. Or two, if they continue to ship their incompatible implementation of the Java technology in Windows 98 that they be required to ship Sun's Java runtime environment also bundled with that product. Or, three, that Microsoft simply remove any incompatible version of the Java technology from Windows 98."

The second preliminary injunction requests that Microsoft's tools for building Java applications be allowed to ship only if those tools create fully compatible Java applications.

Tom Bart, associate general counsel for Microsoft, said "Microsoft is in compliance with its contract with Sun. We will establish that in court. The timing of [the] antitrust claim appears to be unrelated to cease maximum publicity and not oriented towards achieving any particular legal result."



The luck of the draw?

Carol Daniels and Frank Wabnitz (right) won Computer City Partnership's (CCP) award for the best in Las Vegas recently courtesy of Canadian Computer Wholesaler's top-selling at ComputerFaction.



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- Intel 430 TX chipset supports Ultra DMA/33 IDE protocol, ACPI
- Two 168 pin DIMM sockets for 3.3V unbuffered DRAM modules support SDRAM, EDO DRAM, and Four 72 pin SIMM sockets support EDO & FP modules, up to 256MB
- Baby AT form factor, Three ISA slots, Four PCI slots



PX5

- CPU SOFT MENU™ - Jumpertek's Technology
- Supports 60, 65, 66, 68, 75" 83MHz CPU external clock speeds
- Supports Pentium® processors and Pentium® processors with MMX™ technology
- AMD K5™ /K6™, Cyrix 6x86™/6x86L™ /6x86MX™, IDT WinChip C6 processors
- Intel 430 TX chipset supports Ultra DMA/33 IDE protocol, ACPI
- Two 168 pin DIMM sockets for 3.3V unbuffered DRAM modules support SDRAM, EDO DRAM, and Four 72 pin SIMM sockets support EDO & FP modules, up to 256MB
- Baby AT form factor, Four ISA slots, Four PCI slots

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- Supports up to 512MB MAX (8, 16, 32, 64, 128MB SDRAM) and ECC function
- ATX Form factor One AGP slot Four PCI slots and Three ISA slots

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It is time to upgrade again and this motherboard is the perfect basis for your whole system. The ABIT BX6 comes with Intel's new high-end chipset announced on April 16 to support the new Pentium® II 350 MHz and 400 MHz CPU's. Better yet, this motherboard is backwards compatible to support all Pentium® II CPU's currently on the market. That means that you can use your current Pentium® II CPU with the BX6 and get a performance boost from all the latest features of Intel's 440BX chipset. Furthermore, you can benefit from ABIT's new Soft Menu™ II which allows for the first time ever, voltage adjustment for Pentium® II CPU's, plus faster boot times compared to the original Soft Menu™, and on-board hardware temperature monitoring.

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Macintosh market Quickens, in more ways than one

On May 3, Apple Computer Inc. and Intel Inc. jointly announced that Intel would continue to actively develop the Mac version of its Quicken financial software.

Intel has had a close strategic relationship with Apple for many years (including an Intel executive on the Apple board of directors), so when it was recently disclosed that Intel was not planning a simultaneous new Mac version of Quicken while a new Windows version had been introduced, many observers took this to be a bad sign of slipping third-party developer support for the struggling Mac platform. Coming at a time when other Apple moves were generally upbeat, the Intel announcement took some of the shine off the "new" Apple Computer Inc.

According to Mark Gomez, senior vice-president of Intel's Consumer Division: "We've always seen what Apple is planning for consumer products... we're thrilled to

continue our close support for the Macintosh."

This rather cryptic reasoning became easier to understand when Intel's latest generation of new Macs. On May 7, senior CEO Steve Jobs announced four new lines of Macs, led by the iMac — a high-powered consumer desktop PC. The iMac features an interesting "all in one" ergonomic design with a built-in 15-inch monitor, a high-powered "Pentium-tossing" G3 chip, and easy Internet connectivity. Canadian prices are expected to be in the \$1750 range. The new PowerBook G3, with full desktop replacement power, will start at \$3,599.

According to Jobs: "These new products keep you people what they want most, a lightning fast notebook and a striking new consumer Macintosh. Apple leads when it expresses its vision through its products, exciting you and making you proud to own a Mac."

New DVD standard proposed by industry consortium

According to reports from the U.S., a consortium of the Circuit City Stores Inc., retail chain and the California law firm of Ziffman Britton, Branca and Packer is aiming to replace the current DVD (Digital Versatile Disk) format with a proprietary Digital Video Express (DVE) format.

DVE would be used for entertainment "software" (mainly digitally recorded feature films and videos), and would require a special DVE player. DVE players would come with a built-in modem, and when the user attempted to play a movie disk, the DVE

player would call a 1-800 number, and require users to pay a fee each time they watch a movie.

The "fee" fees would be split between the copyright holder of the movie (mainly U.S. film studios and broadcasters) and the partners in the DVE consortium.

DVE would tend to assist in copyright protection and also drive increased revenue to the studios. For end-users, the benefits are not so clear.

For more information, visit <http://www.dve.com/press0504.html>.

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TEST LABS

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Lotus alters channel structure

Lotus Development Canada has announced a series of changes to the structure of the company's reseller and retail channel.

For starters, Lotus and IBM Canada channel staff joined forces to streamline the ordering process for shrink-wrapped software. By the end of this year, distributors and retail partners will be able to order all products from a single site.

Over the next six months, Lotus says it will be launching a series of incentives for channel partners, with a focus on the retail sector.

Win 98 graphics support will enable video features

Canada's ATI Technologies Inc. claims major new graphics display options will be made possible with the release of Windows 98, expected in June.

Windows 98 will allow multi-monitor support, but an additional PCI graphics card is required for each extra monitor. Multi-monitor support requires software that has been written to take advantage of this option. Typical applications include professional graphics and animation (where one monitor displays an image, and another is used for menus, tools and other way surface display data), desktop video, games, videoconferencing, DVD video playback, WebTV for Windows, and enhanced television/Web content.

According to a recent study by International Data Corp. (IDC), ATI was rated the number one graphics card maker in the 3D/VD graphics accelerator card market, with almost six million graphics cards shipped in 1997. IDC figures indicated a worldwide market for 20 million add-in accelerator cards in 1997, which is expected to grow to 29 million in 2002. See <http://this.is.cnet.com>

Be a virtual ISP with new UUNET Canada program

UUNET Canada says it will offer a Virtual Internet Provider (VIP) dial program to allow companies to resell under their own name, UUNET's Internet dial service, to individual users.

"Through the VIP program, companies can offer their customers Internet access services with routing capability without the responsibility or expense of building and maintaining a network infrastructure," explained Sam Mazzoni, UUNET Canada VIP product manager.

The VIP program is targeted for ISPs that don't want to maintain their own networks, but want to provide Internet access under their company name. Other potential customers include companies who want to provide Internet access as a value-added service for their customers. For example, a bank could offer Internet access along with Internet banking, or a software company could offer Internet access for CEOs, distributors or end users to use to access updates.

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Canadian PC sales grow in Q1, consolidation continues

According to IDC Canada figures, unit sales of PC systems increased strongly during 1997, and even more striking was the surge in sales of the big four PC vendors.

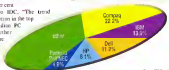
Total Q1 '98 PC sales were 590,000. Of those, 121,900, or 22.2 per cent, were sold by Compaq, 76,400 or 13.9 per cent by IBM, 61,800 or 11.2 per cent by Dell, 44,200 or 8.1 per cent by HP, and 27,000 or 4.9 per cent by Packard Bell NEC.

Compaq's unit shipments grew 63.7 per cent in Q1, compared to last year. IBM PC sales grew by 23.3 per cent. HP's sales grew 60.5 per cent, and Dell sales jumped an

astounding 90.1 per cent.

According to IDC, "The trend towards consolidation in the top tier of the Canadian PC market was further evidenced in the first quarter. The top five vendors now hold 60 per cent of the market, up from 48 per cent a year ago." These figures were based on IDC's preliminary April 1998 estimates.

Q1 '98 Canadian PC sales: 590,000 units



Source: IDC Canada

Total Q1 '98 PC sales were 590,000. Of those 121,900 units sold by Compaq, 76,400 by IBM, 61,800 by Dell, 44,200 by HP and 27,000 by Packard Bell NEC.

Business without boundaries?

Many aspects of business in the 21st century will be conducted with an integrated mix of computer, telephony and networking technology. That's "business without boundaries," according to Simon Wain, Microsoft Canada's general manager. He delivered a keynote speech at CTI World '98, describing the Microsoft vision of a convergence or growing together, of telephony and computer technology.

Wain quoted a prediction that within five years, five to 10 per cent of all voice traffic will be transmitted over data networks. Microsoft is positioning itself at the centre of the new model of computer-telecom

convergence, through its Windows NT server technology. In collaboration with partners such as Digital and Northern Telecom, Microsoft is ensuring interoperability of the NT version of Digital's Signaling System Number 7 product, DSS7, with the worldwide SS7 standard. The latest version 3.0 of the Windows Telephony Applications Programming Interface (TAPI) will enable voice, data and video collaboration over LANs, WANs and the Internet.

The result of all the CTI initiatives emerging from Microsoft and its partners will be a rapidly evolving capacity for businesses to integrate telephone functions as part of an overall network solution. ☐

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HP Makes Big Notebook Market

by Jeff Evans

As the consolidation of the notebook computer market has increased to the point where IBM, Toshiba and Compaq are eating up over 60 per cent of the Canadian notebook pie — the pressure on the smaller players outside the Big Three has also grown.

The message to the little guys: get big or die.

Dell Computer Corp.'s web site direct sales model (increasingly conducted via the Internet) became a major success story NEC faced serious pressure on its market share, struggling to maintain it in its over-flatter market. Hitachi and Sharp announced major new initiatives in the North American notebook market, with Sharp committing to a major investment in North American manufacturing. Acer, following its absorption of the Texas Instruments notebook line, galloping up for its own life-or-death bid to quickly grow its brand share. And Hewlett-Packard, one of the top three in global business desktop PC and workstation sales, has also since 1998 as its make or break year in the notebook computer market.

HP spent much of 1998 and 1997 quietly developing the technologies, products, channel strategies and support infrastructure for its major bid to become the "other" major brand in the notebook market, along with IBM, Hitachi and Compaq.

Drift Factor, Down Time and Distribution

In a strategic alliance with Mitsubishi, HP gained access to leading-edge notebook technology. HP decided that in order to be a serious player, it needed to offer a full range of mobile products, from budget, entry-level models to state-of-the-art, premium business notebooks for power users with big budgets. High-end notebooks from IBM and Toshiba often cost up to \$10,000 and have a limited market share, but they often commanded a larger profit margin than mainstream models, and add a reputation for no-compromise quality and real features. That's the so-called "drift factor" that attracts power users and helps to build the reputation of a brand.

As well, HP has gained a great deal of its engineering and manufacturing expertise in addressing one of mobile computing's greatest weaknesses: reliability. According to Doug Carson of HP Canada, the new line of notebooks have been made rugged enough to achieve up to a 70 per cent decrease in down time due to hardware or software failures. As well, HP is offering extremely comprehensive warranty coverage, both in Canada and internationally, to ensure that if a HP notebook goes down, it will be back in service quickly.

HP recently showed off its new line in New York. According to HP representatives, HP sees the new line as offering solutions across the business spectrum, from small businesses to large enterprises. With the new notebook line complementing HP's other established product categories, from printers to scanners, data backup, server, desktop PC and handheld computing solutions, HP can claim to have the most comprehensive product line for the business computing market.

For more information, contact jeff@hpw.hp.com.

PC Industry gears up to 400MHz Speed

The recent release of a number of new Intel processors has resulted in a flood of new, high-end PC and server products based on the new Pentium II 330MHz and 400MHz processors, and a modest trickle of low-cost "basic computing" business desktops based on the new Intel Celeron chip. As well, the earlier release of mobile Pentium II 330MHz and 360MHz chips has sparked a major refreshing of most notebook makers' product lines.

IBM and HP have announced full lines of new business desktops, personal workstations and servers based on the new 330MHz and 400MHz processors. In the consumer field, the initial high cost of the processors will tend to limit the appeal of the latest chips to the premium marketplace segment of that market. For example, on May 5, HP Canada announced the HP Pavilion 6290 PC, featuring a Pentium II 400MHz processor. HP claimed that the Pavilion 6290 was the first 400MHz retail PC to hit Canadian store shelves.

With 64MB of SDRAM, a 1GB drive and DVD-ROM drive, the estimated street price of the HP 6290 (not including monitor) is \$3,999. Enthusiasm for "basic computing" business desktop PCs equipped with the Celeron processor was muted. A HP representative admitted the company will offer the Celeron-based models for about three months, and then, depending on market response, will decide how much emphasis to continue placing on PCs based on that processor.

On the notebook PC front, the new Intel mobile Pentium II was immediately brought to market by all the main PC makers, including IBM, Compaq, HP and Canada's Eurocom. For example, on April 30, IBM introduced three new series of notebooks based on the new Pentium II processors: the midrange ThinkPad 600, starting at \$4,399, the high-end ThinkPad 770, starting at \$6,499, and the ThinkPad 380X0, starting at \$3,999.

Jeff Evans is Associate Editor for Canadian Computer Wholesaler based in Toronto. He can be reached at jeff@ccpw.com.

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Multi-Displays in Windows 98

By Graham Barnett



Windows 98 and beta 2 of NT5, both due this summer, support up to nine monitors connected to a PC — slow and BQs permitting. Your customers may be dreaming of adding a second video card and monitor for use in Windows 98, but will they be able to get them to work?

Following the theme from my April column, I have spent some time performing further tests on multi-display systems in Windows 98. The results I have obtained are interesting enough to share here and certainly suggest that Microsoft's implementation of this capability is asynchronous at best and a tech support nightmare at worst. Thus, if you are in the business of selling PCs and video cards, you should be aware of some of the caveats.

First, it should be said that your results may vary. We tested the same graphics cards on two different PCs and had completely different experiences, apparently not related to driver or IRQ issues. The fact that a combination of PCI-based Permedia2 and All-in-Wonder cards worked on a 440FX-based Pentium Pro system with an Asus board but failed miserably on a 1995-range Pentium PC using a Soyo motherboard has, for too many variables, to categorically conclude that the Soyo board or BIOS is at fault.

Conversely, why an ATI All-in-Wonder worked splendidly as two of our test machines as a secondary adapter, yet prevented this same Pentium Pro system with a WinFast 3520 adapter (configured as the primary display from even loading, remains a mystery. One thing's for sure: The IRQ jumper on the ATI All-in-Wonder and ATW Pro cards doesn't need to be enabled to allow these cards to receive video input signals using the ATI software, but it sure does if you want to have any success using the Microsoft ATI drivers to access WinTV for Windows.

Also, today's 3D-accelerated video cards have with a wide array of capabilities, that the potential for compatibility issues looms large. Take, for example, cards based on the Permedia2 or the ATI Rage Pro chipsets. Both are very popular, yet both yield quite unimpressive results in a game such as Microsoft's *Monter Truck Madness 2*. (It is a very good way to demo the benefits of a Voodoo2 add-on card, though.)

Without a Voodoo, Voodoo2 or comparable add-on, the ATI Rage and Rage Pro cards render the *Monter Truck* headlights beams to apply opaque cones. The Permedia2 gets the beams right, but looks up on the first transparent glow effect from headlights and taillights.

Assuming that you can get two or more display cards to work correctly in a multi-display Windows 98 or NT 5 environment (NT 4 supports multiple displays using certain

cards as well), there is a more serious issue to be aware of. We were disappointed — no, horrified is more like it — to discover that when a second display is active, the 3D graphics acceleration on your primary display is disabled. For example, say you've got a Permedia2-based Graphics Blaster Extreme card as your primary display adapter and install an ATI Rage II-based All-in-Wonder as your secondary display adapter. When both are enabled, the *Graphics Blaster Extreme's* OpenGL benchmark score (running the X29 benchmark) drops from a blistering 182 frames per second (fps) to the same level as the All-in-Wonder's laggardly 41 fps. The solution? Double the secondary adapter in the Display properties dialog when you need 3D acceleration. Unfortunately, this means that games like *Flight Simulator 98*, which can take good advantage of multiple views, will not deliver optimum performance in a multi-display configuration.

All of this suggests that the 3D-accelerated entertainment market won't be especially satisfied with Microsoft's initial attempts at multi-display support. However, business and graphics-oriented users (especially users of palette-heavy apps like CorelDraw or Photoshop) will be glad to have a solution that will give them a good excuse to ask the boss for a nice new graphics card and a new monitor on their desks. Demonstrating graphics apps with the menus and palettes on one screen and their work on the other will

undoubtedly pay off for those who make the effort to figure out the problems before their customers do.

Avoiding the Osborne Effect

On another topic, be prepared for questions about upgrades to Windows 95. Microsoft dealt with the issue with a special release of Windows 95 in early May. Apparently due to pressure from its channel partners, Microsoft has released a new version of Windows 95 that includes a free upgrade for most (precisely, the customer pays only a nominal shipping and handling charge) to Windows 95. This, presumably, is an effort to counteract the "Osborne effect" — the downturn in system sales that happens when a new product has been announced, but has not yet shipped. Julian Osborne, in the early '80s, saw his company go down the tubes when sales of Osborne's original "luggable" PC declined sharply after the second-generation model was pre-announced. He proposed for customer questions about his offer by those buying PCs before the June 25 rollout of Windows 95.

Apple News!

Finally, we're delighted to see Apple back on track, as acting CEO Steve Jobs and Apple vice-president of worldwide marketing Phil Schiller unveiled the company's new consumer Mac, dubbed the "Mac," on May 6, and demonstrated the system outperforming a Pentium II 400MHz PC. The Mac, housed in a futuristic pod-shaped transceiver case and featuring a light-up mouse (new!) is expected to ship within 90 days, priced starting at US\$1,299.54 (ask us for the list to compare it to a New Beagle!).

As expected, Apple also announced a new series of PowerBook G3 portable Macs, code-named "Wall Street," priced starting at US\$2,350. We expect most customers will opt out of the models with an AccuMatrix (TFT) screen, starting at US\$3,999, with luxury-minded Apple fans opting for one of the high end models with an 80042s bus — the first yet in a Mac. These babies are slated out in 96! The model selling for US\$3,699 features a 13.3-inch TFT color screen, while a model with a 280 MHz CPU delivers a 14.1-inch TFT screen for US\$5,599. Gulp. Fortunately, these units deliver the goods. MacWorld's Henry Bottoms says the new 250MHz PowerBook G3 is over twice as fast as the Speed/Mark test as the previous midrange model, the PowerBook 1400c/240, and Pentium II-based portables are left as they lay in the dust.

Apple incidentally has a way-cool interactive kiosk at <http://theapple.com/>

recenter.html. Good thing, too. A couple of well-known Apple dealers in Canada begged it during the last month.

Goodbye Doppler, Advantage

As many readers are already aware, Doppler Computers, one of Western Canada's largest and best-known computer retail chains, has declared bankruptcy. *The Computer Paper* was at the location of the company's field office (along with VTV and a few other people who had been tipped off about the closure) as the employees, many of whom were unaware that the closure was coming, filed outside at 12:00 PM on May 1 and a sign placed on the door read "Closed for inventory." By the following Monday a notice that the company was in receivership was in its place.

Meanwhile, B.C.-based Advantage

Computers, another long-time Apple dealer, had its Toronto-based parent company go belly-up. However, a lot of fancy footwork by original owner Bob Cotter ensured that Advantage customers wouldn't be let down. Simply Computing, another western Canadian Mac dealership, has taken over all of the Advantage accounts and is hiring former Advantage customers to take care of their equipment. Simply Computing says it intends to open up its second location in part of the old Advantage site on June 1. Meanwhile, Bob Cotter has started a new venture with a former Advantage employee specializing in networking. Good luck to all. ☐

Graeme Stewart is Editorial Director for Canada Computer Paper Inc. and a former computer retailer. He can be reached at grstewr@tcp.ca.

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A foothold

for the handhelds?

3Com's Palm Pilot is mopping the floor with the competition in the handheld computing market. What is 3Com doing so right? What can anyone else do about it?

by Jeff Evans

For the time being, at least, the crown for the handheld computing market has been won head-on by a relatively new player — the Pilot line of personal organizers from 3Com. But do the competitors have any hopes of slowing down the Pilot's runaway success?

3Com's Pilot family of digital organizers is currently taking about two-thirds of unit sales in the handheld or "pocket" computer market. There are several other noteworthy players with noticeable market share, but what is really interesting is that the handheld computing market is being ruled by perhaps the least sophisticated, cheapest, but most easily usable, of the computers.

Simple is Beautiful

The Pilot runs on a microkernel in the shadow of some mighty and well-established competitors, including the Apple Macintosh (based on Apple's Newton technology), and other handhelds from Palm, Hewlett-Packard, Sharp and Casio. In particular, the Apple Newton technology was supposed to define a new generation of handheld



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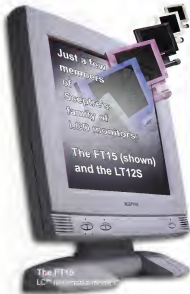
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other companies interested in creating add-on products tailored for the Pilot. Over 3,000 registered third-party developers have quickly created a sizable universe of Pilot hardware and software (check out <http://api.ibm.com/contributors/contributorsnew.html>). These developers, as well as SCers, hope that this sizable body of add-on products will propel the Pilot into its next range of sales, as a platform for large-scale business computing solutions. IBM has taken on the Pilot as one of its products, remaining in the WordPad, to offer it as a mobile information solution to its major corporate clients.

CE for ME3

Microsoft, which for the last five years has seemed to be trying to make Apple out of the title of leading industry innovator, came out with a competing handheld computing platform in November 1994, based on its Windows CE operating system. Although not intended to be a replacement for a desktop or notebook PC, the Windows CE operating system offered a "Windows-like" user interface, and a built-in suite of business applications that were scaled-down versions of Word, Excel and PowerPoint.

Microsoft used its influence in the PC hardware industry to bring a raft of PC makers to the CE table, including Hewlett-Packard,



Philips, Compaq, NEC and LG Electronics. All of these companies seem to market with their own examples of handheld computers based on the CE operating system. Hewlett-Packard, with a powerful, fast LX family of devices, gained the lead in the CE market, with about 12 per cent of North American handheld sales. A major refreshment of the LX line, the new HP200LX Color Printing PC boasts a color screen and enhanced speed, memory and software. The 200LX has helped cement HP's strong position in the CE market. Other handheld competitors with strong financial followings, such as the venerable Palm, Compaq



Keywords: child sexual abuse; disclosure; legal system

Source: The Company, its advisors, its other US market. Some "one-time" earnings, 1999-2000, are shown as:

Footnote — <http://www.gallup.com>, survey on
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Point's latest desktop hardware upgrade features a powerful 386 processor, allowing compatibility to the C and Fibre channels. Recently released, the 386 upgrade streamlines existing capabilities. Power to the desktop is now in control. With the new 386, users can access their Mail, Notes, Address, and Personal Information Manager (PIM) data right where they need it.

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- In business, we're not built to give you and provide training.

MS-CSC is designed to integrate help in corporate computing environments with users in MS-CSC or Windows user interfaces and its format is not as much improved. It includes the integrated, parallel, modified as well as the user interface, the help is not as good as the previous one.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

[illegible]

The Sharp 33-and-Mobio Superstar is very similar in general form to the Flat, comes with a built-in 16.4Mhz screen, and intelligently continues to speak with the non-ACPI, Compaq or Hewlett-Packard. The big question for Sharp, as for many other companies trying to turn low-Platformers, is whether they can get the market off the ground, particularly with the new, and in many ways, modest, leader.

FRANCIS ANDERSON, WILLIAMSON 500 (See Anderson, Francis, 1900)

Sony with a larger-still laptop, the screen that it is first-processor product, Forward Real VHS Inc. is currently shipping the first VHS Modifiable for Windows 95. It is available for about 10% of the cost of the original, the company has given this product a 1.5-year warranty, with dimensions of 11.8 to 4.8 to 1.2 inches.

As a Windows CE 3.0 system, the Minolta 700 includes both a desktop and a portable, and offers basic versions of Microsoft Word, Excel, Outlook, PowerPoint and Internet Explorer applications, plus other MSN content within the system is designed up to a proprietary presentation. Features particular to the mobile include an integrated modem, voice-recording capability for dialing, and up to 20 hours of battery life.

• **Marketwide shifts began in May**—the S&P 500 rose 10% during the period, but as a factor was more and more volatile, it fell by almost 15%.

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[illegible]

means the prospect of true scalability for the mobility family, from desktop PC to notebook, to HP handheld, to PDA, credit-card PC, Commotion.

The View from the Hill

3Com hopes to sustain the PalmPilot's growth by introducing new models and expanding into new markets. According to Nick Todd of 3Com Canada, 3Com is determined to retain

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A Question of Service

by Paul Linn

..... Product margins are tiny, there's a cost for service —
but are the customers getting the support they need?

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I'm looking for.'**
'Get yer yah, yah's out.'
**...'been dazed and confused for so long
it's not true.'**
'Mmm bop, ha duba dop'...
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When a friend of mine bought a gaming SVGA monitor from a computer store to replace one that had died, she could not get the monitor to display more than 16 colors. She needed help, but wasn't sure what kind or where to get it.

The problem seemed to be that her graphics card, Microsoft Windows and the new monitor were not communicating. She didn't get any useful help from Microsoft (after a long wait on the company's support line). The company that manufactured the monitor didn't even include a phone number with the manual — leaving poorly for post-sale technical support.

The monitor wanted to "install a new graphics video card that might solve the problem." He needed the computer for five days and the price he quoted seemed exorbitant.

So my friend called to an independent home-based computer videorepair. For a modest fee, he identified the graphics card (ATI), logged on to the Internet, hit ATI's Web site, downloaded several updated drivers, installed them, and presto, the monitor displayed 256 colors.

The moral of the story: the five-lunch-eat-of lifetime, toll-free hardware and software support has ended.

While one-year hardware warranties and extended warranties abound, consumers and small businesses frequently find themselves in the position where they have to take care of, or find somebody to take care of, their computer technical support needs.

Pentium factors include: a virtual operating system monopoly, a highly competitive hardware industry (with profit margins skewed miserably), and growing support-dependent consumer, small office/home office (SOHO) and small and medium enterprise (SME) markets. Combined, they've led to the scenario of less free support and more fee-based support.

Microsoft Corp., for instance, offers free (but not 24-hour) telephone support for desktop applications like Word and Excel (a long distance call for users outside the Greater Toronto area). If users want around-the-clock toll-free support, they have to pay for it. Price depends on how many problems you want to enter: US\$445 will buy a user a 30-problem resolution package that lasts one year.

Service Squabble

If the problem is with an OEM-installed version of Windows, with allegedly Windows-compatible software, or if it is hard to diagnose (operating system, software or hardware), then consumers can watch companies squabble over who is responsible for support.

The consumer's best bet is to get warranties, guarantees and technical support responsibilities sorted out (and in writing) before buying a computer system or before installing new software. Then, there, consumers should consider extended warranty plans or find a reseller with an excellent reputation for troubleshooting and repairing



problems — no matter who is to blame.

Having said that, it is important to point out that many manufacturers don't think their support responsibilities. Overall, the computer industry understands that it does not make good business sense to leave users dangling in the wind when it comes to support, without the consumer backlash Intel Corp. faced a few years ago when it tried to ignore the bug found in its Pentium chip.

So, even as companies reduce or deflect support services, they have also offered extended warranty plans, encouraged resellers to think in terms of service, support and training, and have upgraded on-line support services.

Microsoft, for instance, offers hundreds of frequently asked Microsoft Office questions and answers as well as product hints, tips and updates online at <http://lsn.msc.com/microsoft/office>.

Big Blue Does Service

The IBM Canada's Web site (<http://www.ibm.com/canada>) and follow the small business link to find a wealth of resource material including frequently asked technical questions, product information and examples of how technology is being deployed in a small business environment. "We've been on a path for the last couple of years to make our PCs easy to use. We've focused on printed and on-line documentation and online tools," says Roy Rivers, marketing manager consumer PCs, IBM Canada. "We've found through studies that consumers want these things to solve problems easily."

Both Aptus and Ambra owners can use diagnostic tools that come with their computers to troubleshoot problems, and they can find technical support information on line. More than 80 per cent of Aptus owners subscribe to a free Owner Privileges program. They receive preferred toll handling and proactive e-mail hints and tips, as well as

"If the problem is with an OEM-installed version of Windows, with allegedly Windows-compatible software, or if it is hard to diagnose (operating system, software or hardware), then consumers can watch companies squabble over who is responsible for support."

information on free software downloads

Besides on-line support, IBM continues to offer one-year, toll-free technical support to computer buyers. However, Rivers says it is something "we continue to monitor." While IBM markets extended warranty plans, the company is also "fully supportive of our retailers who have their own plans," says Rivers.

Helping the customer solve problems reduces channel costs, builds loyalty to IBM, and helps differentiate IBM from the competition, says Rivers. "And our business partners love it. It helps them sell product and saves their costs."

The IBM hardware support foundation applies to commercial sales as well, says Ross Sedgewick, manager of channel marketing, IBM Canada. However, there are greater opportunities for business partners to ensure "a good proportion" of their profits from software, services, training and support, he adds.

There are also high development, configuration support and training opportunities with networks, intranets, Web server projects and data backup and recovery. "That is the business partner's role, especially in the small and medium-sized enterprise market," he says.

Duelling Notebook Service Programs

As part of its strategy to enhance the experience of owning a notebook computer, Richmond Hill, Ont.-based Compaq Canada has unveiled two new services: a 24-hour on-site repair program and a notebook PC warranty repair pickup program.

The notebook PC warranty repair pickup program is being offered to owners of Armada 1500, 4100, 7000 and 7700 Series notebook PC products. Customers simply call 1-800-ON-COMPAQ to request that their notebook PC be picked up for repair. A courier is dispatched, the unit is picked up, repaired by a third-party contracted with Compaq Canada and returned to the customer within 72 hours.

The 24-hour on-site repair program is a one-year, chargeable warranty upgrade. The repair pickup service option is offered free-of-charge, and has been added to the base five-year warranty for products purchased after June 1, 1993.

While customers can opt to have notebooks serviced by any of Compaq's authorized service resellers across Canada, "there are some products we'd rather have come back to us," such as the 7800 series notebooks, says Christian Chabral, notebook product manager, Compaq Canada Inc. This program helps the customers but it also helps resellers, Chabral says. "Some resellers want to offer support and repairs, others don't. This gives everyone an option."

While a lack of competition in the software industry may have led to a decline in service, increased competition in the notebook industry has led to increased support.

Toshiba of Canada Ltd. is investing \$1 million to expand its Markham, Ont.-based Customer Service and Support Centre and is expanding its support team from 11 to 14 members. Bilingual staff provide support for dealers, resellers and end-users. "We are putting the right people with the right knowledge and skills in place to better support our smaller channels and our end users," says Trevor Dumas, regional manager, technical services, Toshiba Canada Information Systems Group.

"Remote support" includes toll-free help, installed PC Card support and full support for pre-installed operating systems such as Windows 90 and Windows NT (including set up and configuration). Toshiba's support staff are "very fluent" with Lotus and Microsoft applications and will work with customers as long they can to solve software glitches, especially when it is a case of the software and hardware not communicating.

The support, described as "an open policy," is not tied directly to

warranties. If customers have post-warranty hardware issues, support staff will help diagnose the problem and will refer users to the closest authorized Toshiba service provider — be it a value-added reseller, dealer or service centre.

Dealers are free to offer extended warranties and on-line services, says Dumas. In addition, Toshiba offers salesmen and drivers and technical information that users can access on-line.

Of course, on-line support from Toshiba and other companies does not just manifest out from the manufacturer's Web site to the end user. Most manufacturers and distributors use the Web to offer vendors and resellers technical support, to supply them with up-to-date product and drivers and to keep them informed about new products and pricing.

So while trends may not be as free as it once was, there seems to be more support information to share than in 1991.

Paul Ems is a Toronto-based journalist who specializes in high technology reporting. He can be reached at AE@sigdirect.com.

'While a lack of competition in the software industry may have led to a decline in service, increased competition in the notebook industry has led to increased support.'

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Quebec

A unique market, and opportunity

By Graham Murray

So you want to do business in Quebec?

It makes sense — the province of Quebec is the second largest market in Canada, right after Ontario. But there are definitely “Do’s” and “DON’T’s” for newcomers to the Quebec market.

The first and most obvious difference about selling in Quebec is the main language of business. Your products and services will need to be available in excellent French.

As well, Quebec’s unique cultural background and huge geography each present their own challenges. Quebec can be one of the toughest and most challenging markets to work in. The province has some of the strongest governmental and private consumer rights’ organizations in North America. An illustration in point: many national agencies use consumers from Quebec such as Lac St-Jean as a “benchmark” because they have the reputation of comprising one of the most critical populations in the country when faced with new products. For more details on the market, see the bilingual Web site of Quebec advertising agencies at <http://www.aappgpc.ca/> for more information on language and culture issues, consumer patterns, media and advertising in the province.

The Hard Facts

As in almost any field, size matters in the IT industry. Major tech companies find Quebec attractive for a number of reasons:

1. There is a well-educated and bilingual labor pool. Montreal houses four universities, two English and two French.
2. Quebec is close to the East Coast of the United States (specifically New York and Boston).
3. The province has ties to France, a significant member of the European Union.

Businesses in IT infrastructure should know that Quebec has become a world centre of telecommunications (Teliglobe, for example, has its headquarters in Montreal). In addition, Quebec has the largest amount of venture capital available in the country. According to Raymond Coupland, president of the risk capital firm TMC2 (<http://www.tmc2capital.com/>), this works out to approximately 45 per cent of the Canadian total.

There are among the factors that motivated both the Swedish company iMagine to select Montreal as the site for its largest North American R&D base (750 engineers and technicians) and why Telecom Italia, the largest telecommunications company in Italy, situated its Canadian headquarters in Montreal.

Hardware manufacturers have their own reasons for favouring Quebec as a base for operations. Here are three examples. The proximity of the American East Coast was obviously an important factor when IBM decided to build a plant in Brossard (in the Eastern Townships, close to Montreal) to assemble and verify more than 90 per cent of North American microchips. Matrix, a leader in graphics cards, exports the bulk of its production and is located in Dorval, near Montreal. The French company GemPlan (<http://www.gemplan.fr/>), the leading maker of smart cards in the world, was attracted not only by the potential U.S. market and the bilingual work force in Quebec, but also the funding and tax incentives offered by the Quebec government. Last October, GemPlan announced the opening of its new North American R&D centre in Montreal.

The Soft Spot

At the software level, the same incentives were decisive for the opening in Montreal of a large plant owned by Ubi Soft (<http://www.ubisoft.com/>), another French company. Founded by the five Guillemot brothers, Ubi Soft is the second largest European manufacturer of CD-ROMs, and one of the most important companies in the game industry for PCs.

Of course, Quebec spawned Softimage (now property of Microsoft), and Olivier Legacé (founded by former Softimage employees), known for their contributions to the making of special effects in such movies as *Blade*, *Starship Troopers* and *Demetrius and the Golem*.

The multimedia and software industries are indeed very active in Quebec, according to the Centre de promotion du logiciel québécois (CPLQ), the “Centre for promotion of Quebec software” — <http://www.cplq.org/>. Of the 149 IT firms in Quebec, 372 are involved in software and multimedia. The current situation of this sector in Quebec is reflected in the following figures provided by the CPLQ:

Targeted alliances

Distribution	43%
Cross-marketing	31%
Financing	14%
Transfered technologies	12%

Actual distribution channels

Direct transactions	41%
Distributors	19%
Alliances	18%
VARs	8%
Agents	5%

May I Serve You?

IT services is a broad area that basically covers everything except hardware and software. Let's take two examples: technical support and IT services and analysts. The bilingual resources in Quebec make it easy to establish service centres for North America and Europe. Symantec and Hewlett-Packard have set up in Montreal, and Digital does in Hall, (across the river from Ottawa).

The possibility of bilingual human resources is a reality because of the large Hispanic community in the greater Montreal region. Case in point: Machine Sapientia (<http://www.machineapientia.com/>), a software company specialized in grammar and spelling tools recently put out *El Corrector* (a grammar and spelling tool for Spanish speakers). The largest multicultural urban area in Canada needs from

Service multinational in Canada are American, two Montreal companies are among the top 10 Canadian professional services companies: the CGI Group (ranking first) and the LGS Group (ranking third).

But What about Me?

Perhaps you are thinking: "That's all well and good, but my business doesn't even come close to matching the size of companies like these. What can I do?"

Actually, there is quite a lot of small business can accomplish in Quebec. Be open to the Quebec market if you plan to do business or settle in a location around Hall. Take advantage of the access to international markets and potential business opportunities on the East Coast of the U.S.

You'll gain access to the economic heart of the province by opening an office in Montreal (which has the lowest cost of living of any North American city of comparable size).

However, do be aware that Quebec's taxes are, in general, among the highest in North America. As for the provincial capital Quebec City: while potential for business in the governmental market does exist, it is by far the hardest place in which to establish a business among the three cities mentioned. (It's a smaller market, there have been budget cuts, and it's isolated from other large centres. That's not mentioning the hard winters.)

An example of a successful small business in Quebec Info, the largest computer bookstore in Canada. Established about 20 years ago, Canolot Info has locations in Montreal and Quebec City. Vice-president Robert Charbonneau emphasizes that the key goal of Canolot Info is "service."

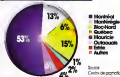
Your value as a reseller is, in fact, defined by that "extra something" you offer to all your customers. Be sure to define your typical customer, especially if you are planning to target hardware sales; margins are so razor-thin in Quebec as anywhere else and competitive is often intense.

Take the time to do research on the features that make the province different in some ways from the rest of Canada (language and location, for example), and similar to others, (such as the IT infrastructure and standard of living). It can contribute to your success in the era of globalization.

Doing business in Quebec can be a profitable and worthwhile venture for companies of any size, but it does require some special effort. ☐

Gaston Martel is a Montreal-based journalist and Editor of *Quebec Micro*. He can be reached at indus@micro.quebecmicro.com.

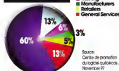
Geographic distribution of the software industry



Toronto. Montreal has enjoyed the contributions from many different cultures. The features fostered the advancement of Afti Technologies (<http://www.afti.com/>), another Montreal-based software company providing multilingual solutions. Itatem, an internationalization library for the Windows platform that works with the Tango Web browser, can support more than 90 different languages, many are quite unique (such as Khmer and Malay), even when compared to technologies like Microsoft's Explorer or Netscape's Communicator.

In the services/consulting sector, the giant DMR, known to be originally a French-Canadian enterprise (the acronym DMR was created 25 years ago from the names of the three founders — Pierre Durosoir, Serge Melinier and Alain Roy) DMR is now part of the American Autodesk, which was recently acquired by Japan's Fujitsu. It is interesting to note that while the top players of the *Business 25 Top Software &*

949 IT companies in Quebec



Source:
Centre de promotion
du logiciel québécois,
Novembre 99

T H E E N T R Y - L E V E L

Our Picks for 233MHz PCs!

by Scott Carmichael



It's amazing to stop and think about the rate of improvements in computer technology. Just two-and-a-half years ago, those of us who had Pentium 133MHz-based PCs were the techno geeks on the block. Nearly everybody else was running systems with Pentium 75MHz chips, or even 486s. Didn't we think we'd be at the top of the heap for a good long while?

Fast-forward to the present. I'm still using my Pentium 133 at home, but now it seems awfully under-powered to run today's professional and games software. Now, the industry is about ready to stop production on the Pentium chips, in favor of the Pentium II series. The 400MHz chip is now available, and there is speculation that 1,000MHz chips may be available before the year 2000.

Having 32MB of RAM in a Windows 95 system used to be considered luxury. Now systems with 32MB are becoming almost commonplace. Hard drive sizes have shot up from one or two gigabytes to over 8GB. CD-ROM speeds have increased dramatically, even over the past year, to 36X. And 3D video cards with faster processors and more video memory have increased graphics ability substantially to have 3D graphics cards. After looking in the past, the more high-end systems seem like pure power in a total box.

What about 'Entry-Level'?

The good news for the price-conscious buyer is that for every

advance in computer hardware, a quality component becomes "last year's model" and drops in price. Consequently, even systems that are termed as "entry-level" are powerful PCs, with a good collection of impressive components. Moreover, this market continues to grow, representing between 40 and 50 per cent of the U.S. retail PC market, according to recent studies.

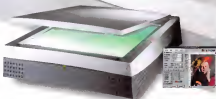
The conversion to the Pentium II chip in new systems is all but complete with the phasing out of the Pentium chip. With the introduction of the 300MHz and 333MHz chips, the earlier 233MHz has dropped in price. With the new 400MHz chips debuting, the older chips have dropped in price enough that a 233MHz Pentium II system can retail for under \$2,000, with still enough room left over for top-of-the-line CD-ROM drives, 56Kbps modems, and video cards suitable for high-intensity 3D graphics or modeling.

With a slightly smaller hard drive or slower CD-ROM, these prices can even be knocked down to just as \$1,500. And even at the low end of the scale, the 233MHz chip is still a fast chip, ap-

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Clearly, these aren't at the peak of computing power, but that's not the point. A good chunk of your market is still made up of people who want to get into the computer world for the first time, or purchase a second computer for the family without dropping a ton of cash on the newest and best.

The Systems

For the purposes of this month's test, we asked vendors to provide us with a Pentium II 33MHz machine with 64MB of RAM. All of the other components were up to the vendor. Most of the systems sent to us had similar components, which were about what we expected; likewise, there were a couple of surprises worth noting.

The first was the video cards. Typically, entry-level systems have been pretty basic, with a functional but not outrageous card. This time out, most of the machines we got received had cards with at least 1MB included, and sometimes 2MB. This meant that, even at entry-level systems, the machines can handle 1,024 by 688 dpi screen resolution with 32-bit true-color without even blinking. Lower resolution provides even better performance. And games are no problem.

The other surprising thing was that some of the machines are starting to ship with Active Desktop pre-installed. How much that affects system performance is unclear. A quick test we did showed little difference between benchmarking scores on a machine running Active Desktop compared to the same machine with Active Desktop disabled (the test with Active Desktop came up a couple of points slower). For the official run of the benchmarking software, we tested the systems with Active Desktop running, since they were shipped that way.

The Tests

As always, the systems were tested using the BAPCo Symantec 32 benchmarking software. Although most of the machines were capable of handling more depth due to the top-notch video cards, in these, the display resolution for our entry-level tests was set to 620 by 600 dpi,

with 16-bit color depth. Performance at higher resolutions is much greater than would have been possible with the 1MB graphics cards common at the low end of the PC scale a year or two ago.

With the switch to Pentium II as the standard chip, a few things should be noted. First, while the layouts of the motherboards are different from company to company, the connection on the back of most machines are hardened into a set configuration, known as ATX. When older machines had serial and parallel ports (floating hardware connected to the motherboard with cables), the ATX layout has the ports connected directly on the board in a standard configuration. The standard mouse and keyboard ports are gone (PS/2), although the serial ports are still of the serial ports for a serial mouse.

Secondly, there's a point of confusion about MMX versus non-MMX chips. To clarify, all Pentium II chips are MMX chips. Although some BIOSes will not list "MMX" when the system is booting up, that is simply a function of that BIOS, and not an indication of a difference in the chip itself.

Thirdly, most of the Pentium II systems use 168-pin SDRAM memory exclusively, meaning more flexibility in memory configuration (all those times when you had to put SDRAM into the board in pairs as a thing of the past). In other words, 72-pin RAM generally cannot be transplanted from an older machine, unless the board is the Pentium II system is one of the exceptions that supports both.

To some, all of this information is like saying that a new car comes with an engine and a windshield. Still, they're important points to keep in mind when the casual customer comes into your store looking for information on upgrading. People moving up from a Pentium board may simply not have the option of swapping the CPU and getting back to work.

Even hardware hackers (who tend to upgrade their systems on a piece-by-piece basis) may find it easier and almost as inexpensive to go for the whole system deal.

A side note, for those interested, is that all boards continue to ship with the Universal Serial Bus port, despite the distinct lack of peripherals for those ports.

Compaq Deskpro 3000

One of the major players in the industry, Compaq provided us with a slightly modified version of the standard Deskpro 3000 model. Typically, the package sells with 32MB RAM, and comes with a monitor for just over \$1,000. To meet the requirements for this roundup, we had 32MB of RAM added to the configuration, and the monitor removed.

The Deskpro stood out from the pack in a few notable ways. While the other systems came with Windows 95 as an operating system, this one came with Windows NT Workstation 4. Hardware-wise, the system was the only one that ships without a modem. On the other hand, the system comes with a Matrox Mystique display adapter hardwired right into the motherboard, a first that goes a long way to explaining the machine's superior performance.

The hard drive, with only 3.3GB, and the CD-ROM, at only 24X speed are respectively less and slower than the same components on most of the other machines. Despite the Matrox adapter being hardwired right into the board, the adapter only comes with 2MB onboard RAM. Signal is courtesy of the ES5 ES 1609 card.

Considering the chance of NT over Windows 95, the shortcomings in the multimedia department may not even be the issue. The Deskpro seems solidly geared toward business rather than play, and in that regard, it comes through handsomely.

The suggested retail on the configuration we tested is \$1,999, and the PC came backed with a three year limited warranty with first year on-site.



Performance

Comtronic AOpen

This time out, Comtronic provided us with an AOpen-branded system packed with goodies: Windows 95 came with Active Desktop pre-installed.

Composed primarily of Acer and AOpen components, the system comes with an Acer 33X CD-ROM, an AOpen K56flex modem with ring wake-up, and an Acer FX-3D sound card. As for components (memory, hard drive, monitors), the machine boasts an impressive 6.4GB hard drive from Quantum, and not only does it come with the ATI Expert@Work XL video with 4MB onboard, the system also features a Diamond Monitor 3D card.

Although the machine provided mediocre performance in some of the benchmarking tests, the street price of \$1,699 makes it a bargain, considering the components included with the system. The AOpen comes with a one-year warranty.



Dell

The system Dell provided for entry-level testing has a good mix of components for multimedia (and was, incidentally, the first system we received with Active Desktop pre-installed).

At 1.2GB, the Quantum hard drive is one of the few sub-4-GB drives in this roundup. However, the rest of the components are more than adequate, including a Matrox Millennium II with 4MB, an Asatech K56flex modem, a 33X Panasonic CD-ROM drive, and a SoundBlaster AW054 card. As a bonus, there's a set of 90-watt multimedia speakers, and a three-button mouse, instead of the standard 2-button model.

The system has a street price of \$1,699, and is backed by a two-year warranty for parts and labor.



Edge KTX

Edge Computer Ltd. built a KTX system with a few differences from the others in the test. Though the other machines were strictly IBM, the hard drive for this machine was a 4-GB Quantum Viking SCSI product. Both the 56Kbps modem and the 16-bit sound card appear to be KTX's own components. The multimedia speakers that come with this machine are powerful, rated at 500 watts of peak mechanical power output, and coming with their own subwoofer. For input, the system comes with the faster Microsoft IntelliMouse, and the Microsoft Elite manual keyboard. The system comes with a Mitsumi 33X CD-ROM drive.

With the differences, the only big problem came in the video card, which is the relatively low-performance Cirrus Logic 5445. As a result, while the desktop graphics were acceptably good, the overall performance of the machine suffered, falling at lower benchmark scores in almost every category.

That said, the KTX does pack a lot of good-quality hardware under the hood, and for those looking for something a bit different, aesthetically speaking, the sound keyboard and speakers' booming bass may be good selling points.

The system has a suggested street price of \$1,799, and has a two-year parts and labor warranty.





Elio

Elio continues its tradition of offering more for less. The machine this month is a full Pentium II 233MHz system with 64MB of RAM, a 3.2GB Fujitsu hard drive, a Licon 24X CD-ROM drive, a SoundBlaster 16 card, a Harmony K540es modem, and a Trident 9750 ACP 3D and TV-out card.

Believe it or not, the Elio system has a street price of only \$1,200, and comes with a one-year parts and labor warranty. Making that delivers better deal is the performance of the machine, which scored in the mid-range of results for this group of machines. Certainly, while some of the components are not the top of the line, the Elio machine provides outstanding performance for the price.



Value

Engen Azura

Pre-installed with Azura Desktop, the Azura also sports a 4.3GB Samsung hard drive, a GVC 94K X2 modem, a 24X CD-ROM and a SoundBlaster card, both from Creative Labs, plus an ATI 3D Rage Pro video card with 4MB of RAM. The system comes with a Logitech three-button mouse as a bonus.

One complaint about this particular system: Most users now feature a front-panel design which pulls the power switch down on the case, away from the components on the front that have buttons and controls. At worst, the power switch for the computer may be reasonably close to the floppy eject button, but with the demanding use of floppies, this isn't as much of a concern. The Azura's power switch is located directly beside the CD-ROM's open/close button, and the "soft" feel of the switch means the user can shut the computer off in the blink of an eye, without even having to press the button deliberately.

For that reason, this machine requires a bit more care while reaching for the CD open/close button.

The Azura has a street price of \$1,738, and comes with a two-year parts and labor warranty.



Jaba System J85-6223/002

Armed with the consistent-looking machine of the month, Jaba offers up the J85-6223/002 system this month. The first thing you notice about this machine is the sliding door on the front. When it's closed, it makes the computer look like it's protected by futuristic armor. Press the release button on the top, and it slowly slides down the front, revealing the CD-ROM, floppy and power button. Sure, it's not an essential part of the machine, but it's cool — and never underestimate the sales potential of cool.

What is especially nice is that Jaba has backed up the look of the machine with solid components, including a 4.3GB Quantum Fireball hard drive, a 24X Creative CD-ROM and Sound Blaster card, the powerful Diamond Fire GL 1600 Pro video card with 8MB onboard, a U.S. Robotics 56Kbps Speaker modem (with a modem necessary kit), a Logitech three-button wireless mouse, and 120-watt multimedia speakers.

The street price on the J85-6223/002 is \$1,995, and the machine has a two-year parts and labor warranty.



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ISF Advanced Technology (NET)Pro ValueII-230

ISF's entry into our test this month comes in the form of the (NET)Pro ValueII-230.

At a \$1,560 street price, this machine comes in near the lower end of the price range. Despite that, the (NET)Pro still contains a bunch of good components, allowing it to bag in a respectable score in the benchmarking tests.

Inside the box is a 4.3GB Quantum hard drive, an ATI Xpert II Work XL video card with 4MB RAM, a Super 56Kbps modem, a Mitsumi 34X CD-ROM and the Analog Device sound card with 50 sound!

The system also comes with CorePerfect Suite II, and is backed by a three-year parts-and-labor warranty. Definitely a good machine for the budget-conscious.

**Myrica Mycomp Vantage-97**

Myrica Technology Inc. has built the Mycomp Vantage-97 system, which comes with Active Desktop preloaded and a good variety of components. This machine features the brand-spanking-new Matrox Productive AGP video card, which has RAM onboard. The Productive undoubtedly plays a part in the good performance of the machine in the benchmarking tests.

The Vantage-97 also includes a number of other high-quality parts, including a 4.3GB Quantum hard drive, a U.S. Robotics 56Kbps modem, and the Creative Vibra 16 sound card. Piling on the system are a 3DTX 24 speed CD-ROM and multimedia speakers.

The machine has a street price of \$1,195 and a three-year warranty.

**STD CompPartner Ultra2300**

STD's entry in this month's test is an unexciting-looking machine, but it certainly compensates for that with high-quality components, high performance, and a great price, to boot.

Underneath the plain case, the CompPartner contains a good collection of some of the newest and best components. This includes well-known name brands, like a U.S. Robotics 56Kbps modem, and a Panasonic 32X CD-ROM drive. The system also has a Diamond AGP video card with 8MB RAM onboard, giving the system solid video performance. All of this is rounded out with a 4.3GB Quantum hard drive, an OPTI 3D sound card and multimedia speakers.

The CompPartner has a warranty good for three years, parts and labor, and comes in at \$1,699.



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Utilist

Inside Utilist's 233MHz system is a 4.5GB Quantum ProBolt SE hard drive, a 32X Toshiba CD-ROM and the Matrox Millennium II video card, with 4MB RAM. Filling out the box are the Sound Pro Wave32 card, a 56Kbps NetLink modem, and 80-watt multimedia speakers. On the software side, the system comes with a CD package containing either 550 games with an easy-to-play, or a seven-title chess-office suite.

The Utilist system has a street price of \$1,560, and comes with a two-year warranty for parts, and five years for labor.



Editors' Choice

In Conclusion

For the most common business and consumer PC applications, computing hardware is moving far ahead of the available software. For retailers, this means that a whole new level of customers can now afford to get into computing, which stimulates a PC market that was looking overcastened and sluggish 18 months ago.

On the downside, margins on these entry-level systems tend to be paper-thin, and the temptation to dump "parts-of-the-work" into a box and ship it out at a low, low price can backfire. Unless quality levels are kept up, the result can be unhappy customers, and the rapid disappearance of even a meagre profit on a sub \$2,000 system sale.

Performance

Compaq Deskpro 2000

In terms of speed, the Compaq Deskpro 2000 takes the honors, hands down. With the video wired directly into the motherboard, the machine danced around some of the other tests on the benchmarking tests. However, with NT 4 installed instead of Windows 95, the system is geared more to the business desktop, and may not be the ideal power machine for everyone.



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Value

Ease

Although some of the components are less than cutting edge, it's hard to argue with a Symantec score of 259 and a street price of only \$1,390. While not necessarily the choice for someone who wants a slick multimedia machine for all the latest games, its price makes it a great starter machine.



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Overall

STD CompaqPartner Ultra333

Not only did the CompaqPartner system place a solid second in this month's speed tests, it also carries a competitive price. The price is even better when you consider the fact that the components included in the package are all top-notch, boasting system performance and reliability. This makes a great machine for almost anyone. **BT**



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Entry-Level Systems



	Comptel Eragon	Compaq Design 3000	Delco	Elo	Epson Aeon
Processor	Pentium II 333MHz MMX	Pentium II 333MHz MMX	Pentium II 333MHz MMX	Pentium II 333MHz MMX	Pentium II 333MHz MMX
Cash	\$1208	\$1068	\$1108	\$1098	\$1098
Keyboard	Agar A001s		Lucy Star 01 100	Epson EP0010K	Shuttle Hot-037
RAM	64MB SDRAM	64MB	64MB SDRAM	64MB SDRAM	64MB SDRAM
Video card	ATI SpeedStreak SL	Matrox Mystique	Matrox Millennium II	Trident 6750 AGP 3D and TV Out	ATI 3D Rage Pro
Modem	4MB	2MB	4MB	4MB	4MB
Sound card	Acor PS-3D	ESS ES 1680	SE A0004	SB	SB
Hard drive	Quantum 5.1GB UDMA	3.2GB UDMA	Quantum 3.2GB UDMA	Teptec 3.2GB UDMA	Samsung 4.3GB UDMA
Operating system	Acor 328	Panasonic 328	Panasonic 328	Logic 324	Crestor Lite 328
Software	Agar 328Max	none	Achse 328Max	Hermes 328Max	SAC 328Max
System I/O	Award	joystick only	Award	Award	Award
Operating system	Win 95 or Active Desktop	Win NT	Win 95 Active Desktop	Win 95	Win 95 or Active Desktop
Extras	Diamond Multimedia 3D card		3D Multimedia options		
MARKS (benchmark)					
Startup (seconds)	318	328	314	304	328
Desktop graphics	400	542	413	360	364
Desktop productivity	337	378	318	332	340
Word productivity	220	230	211	243	219
Spreadsheet	264	209	281	289	277
Database	329	267	317	264	299
Speech	346	357	330	358	348
Connect	(800) 479-6308	1-800-967-1818	1-800-558-6467	(800) 479-3301	1-800-963-6333
Internet e-mail	www.comptel.com	www.compaq.com	www.delco.net	www.elo.com	www.epson.com
Street price	\$1,680	\$1,680	\$1,680	\$1,298	\$1,750
Warranty	3Y, 3L	3Y, 3L	3Y, 3L	1Y, 1L	3L, 3P
(Y of years; L, labor; P, parts)					

What the EAPCo scores mean:

The numbers in the EAPCo chart are derived by comparing the system being tested to the performance of a baseline system that would score 100 in each of the categories. A system that scored 400 in a particular category of the benchmarking test would be four times faster in that particular area than the baseline system. In each of the categories, the highest number represents the fastest performance. The lowest numbers don't necessarily represent "bad" performance, because in general, most numbers are still far

LAB TEST



LCP Technology Intel iType Value II-333	Jobs JWS-3733/462	Edge RTX	Myria Mycomp Vantage-97	STD Compaq Ultra3330 ATX	Unit Unit
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Pentium II 333 Ks MMX	Pentium II 333MHz MMX	Pentium II 333MHz	Pentium II 333MHz	Pentium II 333MHz MMX	Pentium II 333 MHz MMX
510KB	512KB	510KB	510KB	510KB	510KB
6CD RW	1-year 510GB	Adv LX	Mycomp TMM4	CDT Legend	Ultra333 LE
RAM 32MB	RAM 32MB	RAM 32MB	RAM 32MB	RAM 32MB	RAM 32MB
ATI SpeedWork XL	Siemens P100 1000 Pro	Cirrus Logic 5405	Matrox Productive AGP	Diamond AGP	Matrox Millennium II

4MB	4MB	4MB	4MB	4MB	4MB
Analog Device Sound w3D	SB 16	16 bit CTX	Creative Labs Wave 16	DPT 3D 16 bit	Sound Pyra Wave3D
Quantum 4.0GB UDMA	Quantum Fireball SE 4.0GB UDMA	Quantum Viking 4.0GB SCSI	Quantum 4.0GB UDMA	Quantum Fireball SE 4.0GB UDMA	Quantum Fireball SE 4.0GB UDMA
Mitsumi 34X	Panasonic/Creative 24X	Mitsumi 33X	BTX 14X	Panasonic 33X	Seagate 33X
Super 56Kbps	USB Sportster 56 Kbps	56 Kbps RTX	USB 56Kbps	USB 56Kbps	Netlink 56Kbps
Award	AMI	Award	AMI	Award	AMI
Win95	Win 95	Win 95	Win 95 w/Active Desktop	Win 95	Win95
Good Perfect Case II, 56K-480 multimedia speakers	120 W Multimedia speakers / USB modem accessories list	50W speakers and subwoofer / Microsoft Data entry keyboard / MS Multimedia			80W multimedia speakers, CD package with software

337	369	373	335	365	367
405	392	391	433	429	446
237	249	193	236	252	296
238	244	213	234	256	217
279	185	210	204	278	309
236	270	275	240	273	279
281	283	276	282	288	271

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\$1,090	\$1,095	\$1,150	\$1,150	\$1,050	\$1,090
SL 3P	SL 3P	SL 3P	SL 3P	SL 3P	2P SL

better than the baseline system, it's also worth noting which other systems machines scored well in; a machine with lower overall system performance (which is represented by the SysMark22 score) may score poorly in the database section but do better in desktop publishing than some other systems. Just picking the highest overall number may not always be the way to go, if the machine is to be used for a specific task.





Upstart new, processing super-gen Intel has had a fairly simple strategy every six months or so, release a significantly faster version of its own CPU technology. At the same time, drop the price of previous versions. And every couple of years, release a new generation CPU.

As a result, new CPU models were aimed at the high-end, with prices to match. Older versions would appear at progressively less expensive computers, serving broader markets.

But last winter's explosion of low-cost computers caught Intel by surprise, along with much of the industry. To a large extent, these models, accounting for as much as 40 per cent of the consumer market, were powered by new generation CPUs, designed from scratch for low-end machines by Intel's competitors such as AMD, with the K6 processor. Despite a TV ad campaign positing the "Intel Inside" logo containers were happy to use something else inside if the price was right.

The result is a strategy switch by Intel, leveled at a single CPU line aiming to cover the entire breadth of the market. Intel is now offering different processors for different market niches — a processor line for mainstream business models, one for high-end servers, and another for low-cost, consumer markets.

On April 13, Intel unveiled the first Celeron processor — its new model aimed at the low-cost mass market. It's a 266MHz model, based on Intel's Pentium II, and like that processor, is designed as a cartridge to fit into Intel's proprietary Slot 1.

While Celeron is presumably named after celerity, an obscure synonym for speed, the design keeps the Slot 1 design, but drops the cache RAM. The result is a processor that compares badly to low-cost models from Intel's competitors, and even to the slower Pentium MMX models from Intel that it is meant to replace. PC Magazine, for example, benchmarked a Celeron 266MHz system from Compaq and found that it ran slower than a typical MMX 300MHz (with 512KB of L2 cache), and in fact barely outperformed an

Say "No" to Celeron

by Alex Zisman

MMX-166. And while Intel had earlier claimed that Celeron models would benefit from their Pentium II heritage with improved multimedia performance, the system tested offered poor 3D performance. Forget about selling these systems to the game-playing segment of the home market.

Moreover, while they share Slot 1 designs, the motherboards on many Celeron systems will not be able to handle standard Pentium II cartridges, making them non-upgradeable. By using Slot 1, however, these systems are forced to use motherboard chips (in this case, the new 440EX) from Intel.

In order to keep the price low, the 440EX is limited in other ways. No multi-processor support, and only two slots for DIMM memory chips — supporting a maximum of 256MB of RAM. Support for a maximum of three PCI slots limits system expandability (by comparison, the common 440BX design for Pentium II supports double the RAM and five PCI slots).

While Celeron, with wholesale pricing at US\$155, is aimed squarely at the low-end consumer market, users will be better served with models based on AMD's K6 (with new models expected to reach 300MHz and 350MHz this year), Cyrix's M168C (coming up to 266MHz and beyond, and offering integrated multimedia), or the new Contour processor from Integrated Device Technologies. All three are based on the older Socket 7 technology used by Intel in its Pentium and MMX models

Currently, Intel's competition accounts for about 15 per cent of the market, which is expected to rise to at least 20 per cent this year as the late work-out problems that limited production in 1997.

Many of the big-name computer manufacturers have abandoned Celeron-based systems, but some, such as Compaq, are also offering M168C or K6-based systems. IBM is ignoring Celeron entirely, using the K6 as its low-end offerings. (IBM is manufacturing K6s for AMD.) Intel fans, instead, are looking forward to the next generation of Celeron. It's code-named Minicore, due in late 1998, and is expected to put a little back into the cartridge, in a way to offer reasonably comparable performance.

The first competitor for now, is to say "No" to Celeron. Nevertheless, at the same product launch, Intel defined Pentium II models running at 330MHz and 400MHz were unveiled, at prices of US\$649 and \$889 respectively. A 400MHz model is expected in July. The CPU speeds represent an increase over the previous 333MHz models, but more significant is the motherboard chipset that they'll run on. The 440EX chipset runs at 100MHz, a significant increase over the 66MHz used in existing models.

Of course, Intel competitors are expected to respond with their own 100MHz chipset designs later this year, and the betting says that Pentium-like models will see even more performance improvement from the faster bus than Intel's Pentium II designs.

These 100MHz bus designs not only allow the CPU to run faster, but they speed up operations across the system. This won't be the end, of course. At last March's WinHSC conference, keynote speaker Michael Slater predicted 200MHz systems (based by 1999) running processors at speeds of up to 750MHz. According to Slater, even the new, faster 100MHz bus will have a hard time keeping up with upcoming RAM designs, such as Rambus RDRAM. ☐

Alex Zisman is a computer journalist and columnist living in Vancouver. He can be reached at alexzisman@sympatico.ca.

COLUMN

Chip wars hit entry-level segment

by David Tonaka



Apparently undaunted by Intel's recent success in the entry-level PC market, Cyrix Corp. is boasting that its MII 300 microprocessor is about 25 per cent faster than Intel's 266MHz Celeron. The company lists its class as a WinScore test result of 76 for the MII, compared to 50 for a 266MHz Celeron. And on the 286-Davis Windows test, Cyrix says the MII scores nearly as high as a 300MHz Pentium II.

Backing up a few months to the spring of this year, Intel Corp., with its PC roadmap, divided the PC kingdom in three. According to Intel's grand plan, the 166MHz bus and Slot 2 Pentium III configurations were to serve the high end, while the Celeron would bring Pentium II technology to the entry-level market.

Intel has traditionally paid little attention to the bottom end of the market. However, it was caught in an awkward position of placing out the Pentium line at a time when the market was suddenly embracing the cheap PC. Its response was to create the Celeron — part of the Pentium II family but without the on-board cache.

Cyrix and Advanced Micro Devices Inc. (AMD) have been singing a cannoneer war song against the Pentium II with its proprietary Slot 1 design. The MII and AMD-K6 offer comparable performance, the chipmakers argue, while offering further savings by being compatible with existing Slot 1 motherboards. AMD recently announced a two-year foundry agreement with IBM to sub-capacity for AMD-K6 production. Production there is expected to begin in the third quarter of 1998.

Among the foundry-name manufacturers that have been using AMD and Cyrix CPUs are Compaq and IBM. IBM's Agenda II series will use the AMD-K6 processors, including a 300MHz version.

"The big question is where the next 'magic' price point resides for Cyrix and AMD. Will it be \$50 less than genuine Intel, or \$250 less?"



Also with its eyes on the entry-level PC segment, National Semiconductor Corp. announced in April that it will have a single-chip PC system by mid-1999. National says the single chip will be built around a Cyrix CPU core, and will replace the dozen or so chips that are currently used to build PCs. (National and Cyrix merged in November, 1997.) The chips will be manufactured at a new 0.25-micron wafer fabrication plant in Portland, Maine. National says the plant has the capacity to scale the process down to 0.18 micron.

National says it is taking a distributed processing approach to chip integration, where different parts of the chip will be optimized to perform specific functions. Hence the chip would have multimedia processors and communications processors, for example. The company says that all the major PC functions, except for memory and some of the power supply components will be integrated on the chip.

Santa Clara, Calif.-based Integrated Device Technology Inc. (IDT) announced in the spring that it had signed a foundry agreement with IBM to use its 0.25-micron, Blue Logic technology to manufacture IDT's WinChip C6 microprocessors. The WinChip C6 was announced in October by IDT subsidiary Centaur Technology Inc. The MMX-optimized chip, which was expected to be shipping by mid-1998, is aimed at the sub US\$1,000 multimedia desktop PC market.

Evergreen Technologies has announced it will be using the WinChip C6 microprocessor as its MoPro line of Pentium upgrade processors. These developments mean that a lot of action is taking place for entry-level and CPU replacement markets.

In terms of new PC production, Intel, Cyrix and AMD now have (arguably) comparable CPU technologies for the sub-\$1,000 PC market. This was where Intel's competitors were going to make hay, but already, some vendors are advertising Celeron-powered PCs below the magic \$1,000 mark, and that's in Canadian dollars. Intel, with its "Intel Inside" campaign, has done an excellent job of capturing consumer confidence.

The pressure will be on PC manufacturers to bring Cyrix or AMD-powered PCs to the market at even lower prices. The big question is, where the next "magic" price point resides. Will it be \$50 less than genuine Intel, or \$250 less?

The alternative scenario is the rise of the simplified PC to meet the needs of a less technologically sophisticated buyer. For example, Acer has announced its XC computing appliance concept, where PC-like computing devices (lacking with limitations in functionality or expandability) will become available starting at US\$199. These will be geared to people less concerned with the nitty-gritty and more with what it will allow them to do. Acer predicts that the XC will prove to be more popular than the PC within a decade. □

David Tonaka is a Vancouver-based journalist and Editor of The Computer Paper. He can be reached at dtona@comp.ca

The Path of ProData

This Western Canadian distributor says it's firm on the "value" model of doing business.

by Michele McGraw

Gil Gierlin has travelled a long way since his early days in IT retail when he sold software from his station wagon. Now he's behind the wheel of a Western Canadian PC manufacturing and distribution company that boasts four locations with sales expected to hit \$30 million this year.

Gierlin, president of Pro-Data Inc., headquartered in Winnipeg, recalls loading up his station wagon with products and knocking on doors when he started the company in 1987. A box of diskettes sold for \$40 and was priced a high-bid item, he said. "But as prices moved on all these types of products we realized we had to get into higher ticket items and that's when we started distributing hardware products," he said. "In a certain sense, life was simpler in those days. It was easier to sell your product. If you had the product, someone was just knocking on a door was enough to sell it."

These days, it's a tougher sell. Successful providers must deliver quality products and provide good customer service and support, Gierlin said. "Right from the start we've been a semi-co-located company," he said. "A lot of distributors are more like brokers. They just buy products and move them on the back door, then come on. We've always been focused on partnering with key suppliers such as Fujitsu, Sharp and MGE. We don't carry 10 different CD-ROMS or 10 different motherboards. We decide which products [are the best] and we stick with them. Basically, we've had the same suppliers for 10 years."

Sean Lublin, national sales manager for Fujitsu Canada Inc., said Pro-Data customers get good value. "They are a quality organization," Lublin said. "They love to provide customer service and support and

that's what we like about them. People don't buy from them because they're the lowest price in town. People buy from them because they get the quality, service and support."

Building alliances with companies like Fujitsu Canada Inc. is important to Pro-Data's success, Gierlin said. "Alliances are very key. Many distributors just shop around. They search and buy CD-ROMs [that are] very cheap. They'll blow those out and move onto another product line. Those are brokers. They're here today and gone tomorrow."

Michael Pedelin, service manager at Core Factor Computer Services head office in Calgary, has been a Pro-Data customer for approximately four years. Pedelin supports the company's value model. "It's not good for a company like us to buy the cheapest product we can find. There wouldn't be any consistency. We try to sell a good product that's well supported and one you can get replacement parts for. With a good product, you're going to have a minimum amount of problems and people will be happy."

Pro-Data's line of products includes Fujitsu hard drives and printers, ECS motherboards, Sharp notebooks, Hyunda computers, Allied Telesys networking products, GVC modems and notebooks, STR, Truview and MGE. Pro-Data is an authorized service agent for Packard Bell, Sharp, Hyundai and Fujitsu.

Pro-Data brought to market its first Performance Design desktop system in 1996 and has since built more than 30,000 personal computers. These systems are built in Canada and configured to suit a customer's needs. Some of the features include an ECS motherboard with Intel 486 TX486VX chipsets, a Fujitsu floppy drive

and a keyboard.

Approximately 30 per cent of Pro-Data's sales are to western Canadian university bookstores that resell computers on campus. Pro-Data has locations in Winnipeg, Calgary, Edmonton and Vancouver. The company has 38 employees and Gierlin plans to hire four more in the fall who have the right fit.

"We prefer people who are just standing out in the industry who show us the skills we want in terms of personality and integrity and from there we'll show them the sales training."

Gierlin, who is a shareholder in the company, along with Thomas Goetting and Christine Kiering, said he has no plans to expand into eastern Canada. "We don't chase customers out there because we can't support them properly," he said. "I can sell those products, but when they need more support, we don't have a warehouse or service on site [for them] so I don't feel comfortable with that."

Gierlin expects his company to grow within the ever-changing market. "The future of the market is pretty wild," he said. "It will continue to grow as PC prices continue to fall. Every time it falls 10 to 20 per cent, a newer market opens up. It has a peak point where there's a new market level of people who can afford PCs. Businesses are always looking to become more efficient and computerizing businesses will only continue to expand."

"People know what to expect from us. We're not a distributor that opens up and has mad big pricing and then is gone a year later. We're always going to be here." ■

Michele McGraw is a Toronto-based journalist.



from Newsbytes

Canadian trade mission reaps \$800 million in deals

Canada's minister of international trade Sergio Marchi, was in Hong Kong recently to oversee the signing of \$800 million in agreements between Hong Kong and Canadian IT companies. He also visited China.

Other investments were made in sectors such as aerospace, technology, construction, electric power, manufacturing, medical supplies and education.

One of the deals was between Newbridge Networks and New World Telephony Hong Kong, for switching and routing equipment for New World Telecom's new ATM network in Kowloon Bay.

The network will be designed to connect more than 1,000 people over six floors, and will allow voice, data and video images to be transmitted at speeds of up to 155Mbps. Newbridge claims this will be the first switched routing system in Hong Kong to be built using the Multiprotocol over ATM standard.

At the ninth Annual Governor's Dinner of the Canadian Chamber of Commerce, Marchi said that as dramatic as the increase in trade and investment had been, relations between Canada, China and Hong Kong are just getting started.

"As we approach the next century, Canada is looking more and more to the Pacific Rim for our own economic growth," he said. "We recognize that the greatest opportunities of tomorrow are here."

Another contract was signed between Romatics Technologies Inc. of Vancouver with Hong Kong's IMD Ltd. for the distribution of Romatics Internet personnel recruitment technology products in Asia, Australia and New Zealand.

The third was the signing of a memorandum of understanding between Telephonic Canada and the Hong Kong Joint Institution Job Information Center.

The agreement is for the establishment of an apprenticeship program where recent graduates from seven local universities and colleges will have the opportunity to receive on-the-job training at Telephonic headquarters in the U.S.

Hitachi Ltd. announces 0.18-micron ASIC chip family

Hitachi Ltd. has announced the development of a new family of ASIC (application specific integrated circuit) chips produced at half the resolution of current chips. The H079C series of chips, to be available in June, is built on a 0.18-micron rule.

Hitachi's current H079C ASIC series is built to a 0.35-micron rule, ensuring the smallest gap between circuits and components can be 0.35 microns. The new chips, built to a 0.18-micron rule, halve that gap, meaning chips can be made much smaller, or more can be fitted into the same size package.

In addition to the increased density,

Hitachi says the new series offers a maximum clock speed of 400MHz, low supply voltage and one-fifth the power consumption of the previous 0.35-micrometer well-based IC series.

Using this new technology, Hitachi says it is now planning the production of an ASIC product range that includes its SuperH microprocessor core, DRAM, flash memory and other circuits on the same chip.

Customers will be offered a range of microprocessor cores for use with the ASICs, including the SH-3 32-bit RISC processor and the 16-bit H8S microcomputer.



Kao to end floppy disk production

Kao Corp. says it will end production of floppy disks.

The company, formerly the world's largest maker of floppy disks, ended production in the U.S. last year.

The move to end floppy production, currently at factories in Japan and Europe, comes after Kao has seen large losses in the market. Still, competition in the floppy market has pushed the price of a disk down from around 1,000 yen, when Kao entered the market in 1980, to around 300 yen in the mid-'90s to around 20 yen more recently. □

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in the Black

by Paul Weinberg

Competition is red-hot as accounting software vendors vie for the small-business market.

On the software front, accounting these days is anything but boring and static.

Sales for accounting software packages in the Canadian retail/wholesale channels rose by 24 per cent between the first two months of this year, compared to the same period in 1997, says David Ryan, business manager for A.C. Nielsen & Co.'s computer industry services. He suggests that with the preponderance of small businesses, which still use paper ledgers, this huge market is still not fully tapped.

But even among existing users of entry-level accounting software, the matter of year 2000 compliance is forcing many clients to take a closer look at their financial management requirements, says Richard Miroshchuk, a fellow chartered accountant (FCA) and president of Toronto-based Miroshchuk & Associates Inc. "Two years ago, nobody was interested in the year 2000 problem. Now, it seems to have penetrated 40 per cent of my practice."

Also continuing to make waves is the ongoing competition between the two most popular accounting software brands, which are currently neck-in-neck in terms of current sales in the Canadian retail/wholesale channels, reports Ryan. In the first two months of 1998, Intuit Inc. (QuickBooks and Quicken) led the pack with 44 per cent versus 41 per cent for Computer Associates International Inc. (Simply Accounting). Ryan adds that these numbers fluctuate monthly with Computer Associates sometimes placed slightly ahead of Intuit.

Meanwhile, BrioWare continues to be locked in third place at 11 per cent. Tom Mark, director for the Toronto-based BrioWare Canada disputes A.C. Nielsen's analysis, stating that the research misses niche markets where BrioWare is strong, such as wholesale distribution.

Also, Miroshchuk suggests that Simply Accounting has a larger presence within its installed base of traditional loyal users. He attributes this to the product's strong Canadian roots—it was originally developed by a Vancouver company that was subsequently bought out by Computer Associates. But mediocre sales of less than one per cent in the larger U.S. market led to its neglect by the New York-based software giant. "Computer Associates wasn't doing much with Simply Accounting. The product was stuck in a time warp. For a couple of years, [CA] focused on minor maintenance upgrades," he states.

Switching accounting systems is not an easy decision for an end-user and mastering a new product requires 50 to 100 hours of actual use, says Robert, Oak-based Tyne Benschelke, chartered accountant, at Wedgbury Smith Benschelke. He therefore finds that Intuit's QuickBooks has been making major inroads into start-up businesses. Many of his clients are former middle managers of downsized organizations that are starting new enterprises from scratch. He attributes QuickBooks' popularity to its ease of use, compared to Simply Accounting, which he describes as "cumbersome."

Lee Horgan, senior product manager for Edmonton-based Intuit Canada Ltd., adds that his company has "demystified" accounting. He also notes that at least 40 per cent of the purchasers of Intuit's products exclusively rely on his company's personal management software product, Quicken, for business accounting. It has attempted to rectify this with the introduction of an intermediary product, Quicken 98 Home and Business.

Accounting software was originally designed for accountants and not surprisingly they contain a lot of jargon and approaches best appreciated by this profession. The challenge has been "to balance accounting integrity and ease of use," says John Schouman, the Toronto-based vice-president of sales for Accpac International, the division of Computer Associates in charge of Simply Accounting. He contends that his company "has not moved rapidly" in recent years on additional features for its entry-level product. But Schouman asserts that the recently released Version 4.0 of Simply

Accounting has user choice countries, including an electronic invoicing feature and a bilingual interface — plain English or in the language used by accountants.

One of the potential drawbacks against Simply Accounting is that a user cannot delete an entry, as opposed to QuickBooks, where one can input the correction and the error disappears without a trace. (MYOB is somewhere in between in terms of this feature). However, Schatzman at Accpac International argues that good accounting practices must include a complete audit trail, which is why the product records both the original information and the adjustment to avoid confusion and provide a full financial picture for the accountant.

While small businesses inevitably make mistakes, it is another thing "to monkey around with the books, leading to fraudulent acts," adds Monochrome.

Unlike other applications like word processing where one brand is the same as the others, each accounting software package differs somewhat in terms of features. This can spark a lot of argument among accountants over which product is preferable. Bombakian, for instance, likes the large database in QuickBooks, because it allows for multi-year financial reporting. However, Monochrome finds that this also slows up the processing of transactions in QuickBooks. "I understand later in addressing this," he says.

What has helped Simply Accounting's sales up to now, recalls Bombakian, is that it was the one accounting product that computer store clerks were most familiar with, even with the presence of other titles on their shelves. But the marketing of QuickBooks on television has changed perceptions at the front counter. "Even the kids in the stores are pulling up the multi-man," he adds.

In order to strengthen their foothold in the channel, most of the accounting software vendors will try a computer retail staff on the latest products. But rapid turnover in these stores often defeats the purpose of this offering, states Nash at BestWare, who describes this as "the toughest challenge" for his company's business. BestWare cannot afford to pay for well-positioned shelf space in the stores on a per retail basis, he said, unlike Intel, which is able to share its expense among a larger line of products.

Nash reports that his industry "is going beyond ease of use." He sees vendors including BestWare adding features to their offerings to address the requirements of neglected niche markets. Small import-export businesses, for instance, could use a multi-currency option, but this is only available in more expensive and robust, mid-range accounting software products, priced in the thousands of dollars and geared for companies with a few hundred employees.

Nash lists top-of-the-line versions of all three major entry-level accounting products increasingly containing such features formerly only seen on more sophisticated software. One example of this is the \$700 multi-user MYOB Premier. However, Nash adds that such LAN products are really aimed at small businesses which have outgrown their present accounting systems. Network versions are of not much use to the average modestly sized enterprise, which typically has only one person working full-time on the books.

But there is trend towards greater integration of the accounting systems with the rest of the office, says Monochrome. Version six of Simply Accounting, for instance, contains links with Microsoft Office, which allows employees who are not accountants or bookkeepers to take information from the accounting system and create reports in other applications such as Page and Word.

Looking on the horizon for entry-level accounting products laden with new enhancements is the question of how long one they stay in the sub-\$500 range. Nash foresees in the near future "a sort of the luxury" by name, for instance, with QuickBooks, which he predicts could be as high as \$300 down the road.

On the other hand, a balancing of interests exists in the buying of accounting software, what Nash calls "bistatancy," between the small business owner fixated on price and the accountant who worries about the best features and product quality. In the end, the owner is inevitably influenced by the recommendation of his financial adviser. Also, it is much easier for the partner of both the end-user and the accountant share compatible accounting systems. ■

Contacts

Accpac International — <http://www.accpac.com>

BestWare — <http://www.bestware.ca/>

Computer Associates — <http://www.ca.com>

Intuit — <http://www.intuit.com>

Simply Accounting — <http://www.simplyaccounting.com>

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MYOB software interface



Simply Accounting interface



Microsoft Excel — allows data

Microsoft Dial-Up Networking:

Not Just for the Internet

By Glenn Josephson

Imagine this scenario: A field sales rep has to give a presentation to a group of prospective clients. It's about 9 p.m. the night before the big day. The rep is in his hotel room and he decides to run over the presentation one more time. He fires up his laptop, gets to open that Microsoft database studies "That file won't open!"

Now what? It is too late to try and re-create the presentation. The office is closed so he can't get a mail-a-copy and the presentation starts early the next morning. Our friend is pretty much out of luck, isn't he?

Maybe not. Suppose our rep could dial into the company servers and access his files as if he were at the office, and simply transfer a new copy of his presentation to his laptop? No problem, if he's using Microsoft's Dial-Up Networking (DUN). DUN is widely used for TCP/IP (Internet) access, and while many corporate business are also adopting TCP/IP as the protocol of choice, many still use IPX or NetBIOS to access Novell and Windows NT servers. Many don't realize that Microsoft's DUN is capable of handling these protocols over a standard dial-up connection

office). This is efficient, as it doesn't require additional software, and provides a mass centralized repository for data files.

For the user, logging in from a remote connection is the same as logging in from a networked workstation, with the obvious exception of using a modem instead of an NIC. This can easily be done with a shortcut on the desktop, in the same manner as one would set up a TCP/IP dial-up connection on the client and. In the set up for DUN connections, options are presented for enabling the desired communications protocols. In fact, multiple protocols can be supported by a single DUN connection, allowing access to a variety of services on the server end.

On the server side, a Remote Access Server (RAS) is used to take incoming connections. This can either be via a single phone line or a modem pool. The RAS connects the incoming calls to the local network. Once the proper connection is established, the users can have the same level of server and device access as they would normally have if connected to a machine on the local network.

Speed

As would be expected in any dial-up situation, speed is affected by many factors, such as modem speed and line conditions. I've personally done file transfers to and from a Novell server over an IPX dial-up and a 28.8 modem, with acceptable results for small to medium-sized files. Of course, it would be better if 56Kbps happened to be supported by the RAS modem pool, especially in a situation where most file transfers are done from the server to the remote user.

It's even possible to run applications from a server on a remote machine, but under

most circumstances, the speed of doing so would be far from acceptable, especially with a large application which isn't used frequently or sporadically. In an emergency situation, however, the ability to do this can be an important consideration for the use of DUN.

DUN 1.2 is supplied with Windows 95 Release 2 and the latest version of Windows NT 4. Users of earlier versions of Windows 95 with the original dial-up networking package should seriously consider upgrading to the latest version. DUN 1.2 has added features and is more reliable than the original. Updates can be obtained from Microsoft's Web site or the Windows 95 section, along with several other components of OSR2. The forthcoming release of Windows 98 and NT 4 will no doubt bring still more enhancements to the package. Consider Dial-Up Networking can be an effective and perhaps essential, tool for keeping road warriors in contact and up-to-date with the home office.

Further information on the use of DUN is available at <http://www.microsoft.com/28>

Glenn Josephson is a computer technician and network guru. He can be reached via e-mail at gljoseph@jost.net

Device Connection

The software can not only be used for sending and receiving files to and from servers, but can also be used to access remote devices such as networked printers. Field reps can take orders log in to the company server, send forms to the office laser printer, and enter orders directly into the corporate database program — just as if they were sitting at their desks in the office. They can also get access to the latest sales figures, spreadsheets, inventory, and other information — all without having to learn any new software (besides what they already use at the

Whether you are currently a reseller or thinking of starting your own reselling business — do you know what it takes to accomplish your dream?

Whether people are born with some of the necessary traits or learn them is a topic for a good debate, but what we do know from numerous studies is that successful entrepreneurs tend to share several important personality characteristics.

Entrepreneurs are often strong individuals, optimistic and successful, and they usually have a high degree of problem-solving ability. They also tend to be self-confident, self-reliant, versatile and successful. Additional traits include being objective, realistic, open to change, and looking for and creating opportunities.

Here are some other common traits of entrepreneurs:

• **Strong goal-orientation.**

This includes the ability to set clear goals that are challenging but attainable and the ability to continually re-evaluate and adjust goals to make sure they are consistent with one's interests, talents, and values as well as personal or business needs. Rather than being content with reaching goals, successful entrepreneurs continue setting new goals to challenge themselves.

• **Persistence.**

This involves a steadfast pursuit of one's aim; constant perseverance, striving for a goal despite obstacles; and strong determination to reach goals regardless of personal sacrifice.

• **Ability to withstand business reversals without quitting.**

Though perhaps disappointed, entrepreneurs are not discouraged by failure. They have the ability to use failure as learning experiences, so that any problems can be avoided in the future, and have the attitude that setbacks are only temporary barriers to goals. This includes a strong capacity to build on successes.

• **Business and production/service knowledge.** Entrepreneurs must understand basic principles by which a business survives and prospers. That means comprehending the role of management and responsibilities of employees to maintain a viable business. Although entrepreneurs must be in control of overall goals, they can't perform each task without help. Awareness of the functions of marketing, accounting, tax, financing, planning and

management, and how to deal with those, is therefore required. They must have a good level of understanding of the product or service.

• **Willingness to accept calculated risks.**

There must be an ability to identify risks and weigh their relative dangers, with a preference for taking calculated risks to achieve goals that are high but realistic. This is con-

sidered a concept in a unique and different way. The entrepreneur must possess powers of both observation and imagination to find as many possible market ideas.

• **Sense of purpose.**

There must be a feeling of urgency to motivate the person to go into business, and the activity must have meaning. The mission may be to make an attractive profit, to sell some necessary and unique product or service, or to develop ideas or skills without the constraints of others' expectations.

• **Human relations ability.**

Entrepreneurs have the ability to understand and connect well with people of varying personalities and values. This is important when dealing with employees, bankers, investors, partners, suppliers, or customers and is reflected in characteristics such as sociability, consideration, cheerfulness, cooperation, and tact.

• **Achievement orientation.**

Entrepreneurs have the desire to take on challenges and test abilities to the limit. Because entrepreneurs are objective thinkers, they build a "what if" scenario into the business plan, so that they anticipate problems and develop strategies to surmount obstacles in advance.

It is unrealistic to suggest that all successful entrepreneurs possess all the traits outlined. Many of the characteristics are interrelated and not all are necessary for business success, so do not be overly concerned if you feel you do not possess every one of these qualities. The key question is: How significant are the missing traits to your type of business and your business goals?

Identify and understand your personal strengths and weaknesses in the areas of management skills, product knowledge, and expertise. Once you have identified these areas, you are then in a much better position to compensate for weak areas by hiring employees, bringing in partners, or taking further training. □

Douglas Gray, LL.B., formerly a practicing lawyer, is a Vancouver-based consultant speaker and author of 16 best-selling books, including The Complete Canadian Small Business Guide (McGraw-Hill), Interview Start and Run a Profitable Business Using Your Computer and Start and Run a Profitable Consulting Business (Book by Self-Concept Press).



By Douglas Gray

trary to the stereotype that entrepreneurs are gamblers or high-risk-takers, the risks involved are often moderate due to the amount of planning behind them.

• **Strong desire for independence.**

There must be a genuine desire to be one's own boss, free from external direction and control. This takes a certain willingness and a proven ability to be self-disciplined in sometimes isolated working conditions, and the ability to organize activities to reach personal goals. Successful entrepreneurs are not easily joined by others. They often join only to network, to make business contacts, further their ventures, or obtain useful information to solve problems.

• **Ability to handle uncertainty well.**

Entrepreneurs must have an ability to live with the uncertainty of job security. They must face many crises, take risks, and allow for temporary failures without panic. Successful entrepreneurs accept uncertainty as a natural part of being in business.

• **Ability to apply ideas in creative ways.**

Entrepreneurs have a strong desire to originate an idea or product, to develop something new or to innovative, to create something happy, to imprint personality, dreams, and

Computer-based

training:

Is A Viable Alternative

by Stephen Morillo

At a recent \$2,000 course I was attending, an attendee, Jim, asked the question: "Why would you want to use client simulations where the DHCP server always assigns the same IP address to a client?"

The seminar leader thought for several minutes. Finally he replied, "I'm not sure. I'd have to get back to you on that one next morning."

During the break, I popped in my CBT Systems CD into Jim's computer. I scanned for the DHCP topics and there was the answer and background information (Jim noted: "Cool, there's even a simulation where I easily interactive setup! My company has 10 employees requiring this course. That's \$20,000! This CD packs the same information and more.")

A few weeks ago, I bumped into Jim. His company decided that computer-based training was a sensible alternative. He was amazed at the depth of offerings from UNIC, C++, SQL, Visual Basic, Java, Web-Design, Lotus Notes, Oracle, Cisco networking, to the entire office application suite.

Computer-based training (CBT) has been around for years, but the old idea has a new face that will be the future of all training.

CBT Systems, the world's largest CBT provider, provides courses for a single machine, via a corporate intranet and over the Internet. As the communications bandwidth improves, the courses will only become more interactive. The graphics and interactive simulations are good and getting better by the day. The actual computer environments are duplicated.

Now the classroom is as close as the nearest computer. It's possible to catch up with the endless upgrading this industry requires — on a ferry, in a hotel, or waiting for an appointment.

The Format

The CBT Systems' courses follow a four-step model:

1. Concepts first — giving the underlying theory.
2. Demonstration — showing how the concepts are used.
3. Guiding the learner to apply new concepts, and,
4. Independent practice through simulations and ending exercises.

How does CBT Systems compare to interactive-led training in a commercial course? It really depends. An experienced instructor who really knows the course material, the software, course type,

Title: CBT Systems courses

Authors: Various

Publisher: CBT Systems Ltd

Web: <http://www.cbtgate.com>

Cost: Varies

Description:

A series of more than 400 self-study, computer-based course modules covering hundreds of computer topic areas. The courses can be offered on a single computer, over an intranet and the Internet. Student management software is also available. All major industry corporations are represented, including Novell's GNE and Microsoft's MCSE and MCSD. CBT Systems develops the courses in conjunction with leading software companies, including Cisco, Lotus, Informix, Microsoft, Netscape, Novell, Oracle, Powersoft and Sun Microsystems.

Rating: B+ to A
(Generally the newer offerings are better.)



and class discussion can't be matched. This is especially true in a college environment, where the course extends over several weeks.

But with classroom instruction in a commercial setting, there are some limitations. CBT training doesn't have that problem. The CDs provide a better opportunity than most books and an attention to detail not permitted with time constrained classroom instruction. Complex areas are fully explained with graphics and demonstrations.

Each course is divided into a series of topic areas or lessons similar to the chapters in a book. These lessons begin with a thorough list of objectives and end with a summary. Each lesson is broken down into easily digestible sections, which are often grouped by sub-topic. Throughout each lesson, there are numerous questions to stimulate thought and keep up interest. Often the technical detail presented exceeds classroom instruction. This is especially important if the user is planning to write certification exams.

To review, the user can take the lesson exams. The questions are well designed and do consolidate the covered material.

The User Experience

I found the software easy to install and quite intuitive to use. A series of on-screen buttons allow for easy movement forward or back. Users can check their progress or go to any subtopic for review. If they're on a busy schedule, they can leave a bookmark so they can automatically return to where they left off in a lesson.

As far as accuracy is concerned, I found fewer errors in their earlier courses than their most recent offerings. Their error rating is definitely less than many of the books I reviewed, and instructor-led classes I've attended.

Practice makes Perfect

For every hour spent in the CBT coursework, I recommend you spend one hour on a working system trying out what you've learned. You wouldn't do the same if you took a regular class or self-studied using books.

As an educator, I advise 100 to 200 hours of study for any major topic area. It helps to go through each course three times: once to get an overview, the second time for details, the third pass for mastery and consolidation. Then spend some time on the actual system. For example, to study UNIX, find a Unix system to experiment with the various topic areas, and your knowledge will be substantially enhanced.

The CBT Market

Anyone in the computing industry can benefit. Computer-based training is a particularly cost-effective training alternative for organizations with large training needs. It's also worth considering for motivated and disciplined individuals. The cost is higher than self-study books, so weigh the benefits versus the cost.

Download the demos from the Web site (<http://www.cbtexp.com>) to get a look and feel for the software. ■

Stephen Barakat, BS, is co-coordinator of the computing programs at Capleton College, which is CIMS, Novell and Microsoft certified. He can be reached at sbarakat@capletoncollege.ca.

Understanding DHCP

In a typical IP network, each computer requires an IP address. In example, 191.103.2.104) to enable it to communicate with other computers. These addresses can be manually assigned and configured on each workstation or server and then manually reconfigured if the computer is moved to another network. Manual configuration leads to conflicts, addresses and incorrect addresses. A DHCP (Dynamic Host Configuration Protocol) server solves these problems. The workstation or server is automatically assigned a temporary IP address out of a pool of addresses. In example, 191.103.2.104 to 191.103.2.110, 191.103.2.110 to 191.103.2.111) maintained by the DHCP server. In this example, the DHCP server manages two IP address pools, a set for each network segment or sub-net. If the PC is moved to another network segment, it's automatically assigned another address that matches the network (example, 191.103.2.110). This important information here is that the address is temporary or leased to the client PC. By default a special setup called a "client reservation," there is no guarantee that the client will always receive the same address. Normally this isn't a problem. But, there can be special circumstances where the computer should always get the same address—for example, when a server is providing resources to client computers.

When a client interacts with another computer on a Microsoft network, typically uses a network name (NETBIOS name) rather than the IP address. For actual communications to occur, the client needs the IP address. Name resolution is the process of translating the network name to an IP address. Another type of server called a WINS (Windows Internet Name Service) server can automatically provide this translation service to PCs on a network. But, what if the problem of application server may have clients that are non-WINNT enabled. This means they can't get a WINS server to perform the name resolution. These clients use a local LMHOSTS file to resolve the NETBIOS computer name of the application server to its assigned IP address. A LMHOSTS file is a text file containing static IP address to NETBIOS computer name mappings. If the IP address of the server changes because it can't connect, then the name resolution will fail. That is, the client will not be able to communicate with the application server until the IP address obtained from the LMHOSTS file is correct.

Returning to IP addresses, the DHCP server guarantees that the application server address will never exist and correspond to the LMHOSTS file by a non-WINS enabled client.



by Chris Pansett

Managing the Network Printing Monster

Life before networks seemed so much simpler — one office computer, one printer, few problems.

But with technological advancements and induced costs acting as aphrodisiacs, companies and printers started multiplying like bunnies. The pace hasn't stopped. Network and systems administrators often feel more like network monsters trying to control an extended family.

One of the most challenging obstacles is that now involves the management of printers and other document-related tasks. Configuring and managing the increasing stack of printing systems has often been a frustrating exercise for IS and IT managers. The issue has slowly crept to the IS forefront: there is a critical need for effective printer management software tools. Fortunately, solutions are being developed. Software is now available to manage existing network, private, environments, and network environments are beginning to harness technology that it hasn't been easy.

Although network printers are everywhere, processing all this information is still not being conducted on a standardized system. Just as network platforms, operating systems and even device performance have spawned mixed systems and intricate integration, the same situation exists in the printing environment. Today's networks are filled with a wide array of printers and output devices, from personal and workgroup desktop printers to flyer office and production printers.

Deploying the right printer service solutions gives administrators the power to monitor and manage this multi-headed network monster.

The Distributed Environment

The first consideration in employing management tools revolves around the evolution of network printing systems as a nerve center of the office. The installed base of network printers is supporting the growing demand for distributed printing. Workers are moving to more powerful printers, offering more features, including faster output speeds, higher volume capabilities and finishing accessories, such as collating and stapling. In addition, the rising popularity of the Internet and business presentation software has sparked demand for color printers to print Internet pages and presentation graphics.

Organizations also view the network as a means to combine printing capabilities with other document processing tasks such as fax and scanning. That emerging trend is producing a new generation of digital centers that deliver broader functionality, adding fax and web-to-print capabilities to network printing and finishing. These services will be available to users through a common software interface.

System Topology

The second major consideration is system topology. Existing networks, generally mixed environments, are changing as new alter-

natives emerge and Web technologies and enterprise intranets become more widespread. All organizations want to make their needs and develop migration strategies that effectively navigate these shifting waters.

A third consideration is deploying a print service solution; procurement style and methodology. Many organizations want to retain the flexibility of buying network printers from several preferred vendors. The growing and increasingly diverse installed base of network printers and evolving network environments require printer management solutions that transcend the siloed, restrictive barriers associated with printing.

A single solution is not likely to satisfy every administrator's needs. Solutions must be provided that serve organizations, ranging from those with diverse platforms to those with a more homogeneous environment. But they deliver today, and can make a network administrator's life more productive and less frustrating.

The Software Is Crucial

Software is available that allows administrators to remotely configure, monitor and manage all printers on local and wide area networks in a multitude of networked environments. Each printer configuration can be password-protected. Detailed images display the actual configuration of supported networked printers, and include installed features like paper trays and machine options. At the click of a mouse, administrators have access to such information as printer memory and installed fonts.

Corporate intranets and the Web can be used as common platforms to deliver printer management functionality that extends beyond coloring tools. Using a standard Web browser, administrators can connect, configure, determine status and troubleshoot printers from almost anywhere.

This new generation of software provides a faster and more productive way to install and upgrade software on network client PCs. Using the Web-based model of distribution, administrators simply alert users to new software and upgrades, and direct them to the appropriate Web site for downloading the appropriate files. Or, they can download the files to their workstation, and then seamlessly administer the printers as needed to take full advantage of any software enhancements.

Choose your technologies carefully. It can mean the difference between the simple life and carrying on as an overworked network monkey. TM

Chris Pansett is the director, North American product marketing, for Xerox Customer Group at Xerox Canada Ltd., developer of Connect Now, a portfolio of printer management software products designed to manage networked printers in a multi-vendor network environment.

Pocket HTML Guide is Hip

By Sean Connolly

Title: Hip Pocket Guide to HTML 4
Authors: Ed Tittel, James Michael Stewart, and
 Nazim Pitts
Publisher: IDG Books
ISBN: 0-7545-3158-4
Price: \$21.99
Rating: A



Okay, I'll admit it. I tried to fit this book into my hip pocket. In actuality, it's a bit on the large side for that, but the title sums up the concept of the book, even if the title is technically a bit off.

Instead of being a comprehensive and weighty manual that details every minute aspect of HTML 4, the "Hip Pocket Guide to HTML 4" gets down to the important stuff in short order. The beginning of the book contains a bit of history of the Web, and a quick primer on the structure of HTML documents. The rest of the book is dedicated to the tags used in HTML 4, the ways they can be used, other tags they can be used between, and which attributes can be modified inside the tags.

The good thing about the format of the book is the variety of methods available for information retrieval. By default, the tags are arranged alphabetically by tag. Functions, comments, text, list, & so on similar tag types are in one area. However, the reader also finds specific tag attributes as if you remember a tag with "ALIGN" in it, you can look to see a list of all of the tags that feature that modifier. In addition, an alphabetical index of all of the tags, regardless of function, appears in the inside front and back cover, with pointers to the page number containing the relevant information.

Inside the text, each tag has its own page, which gives a definition of the tag's purpose and lists all related attributes for the tag, and relevant comments. Suggested style, usage and examples are given for each of the tags.

Also included near the back of the book is a list of ISO characters and their machine codes, so people who've always wanted to put stuff like II p. J.F. into Web pages simply have to look at the chart for the octal code information. A rough hexadecimal conversion chart for color values also appears in the back, as does a short list of suggestions for useful Web-related software and popular Web sites.

The bottom line? The tag information, and the multiple methods of accessing it, make this an invaluable addition to the library of both the beginner and the experienced HTML coder. The extra charts and lists are a great bonus.

As for the title — you could always try a different pair of pants.



Web Book offers Style over Substance

By Sean Connolly

Title: Creating Cool HTML 4 Web Pages
Author: Dave Taylor
Publisher: IDG Books
ISBN: 0-7545-3201-4
Price: \$42.99
Rating: C

"Creating Cool HTML 4 Web Pages" instead seems to be aimed squarely at the Web aesthete.

Although the number of Web-averse people is on the increase, there will always be starry-eyed beginners who have studied a few books and seen pages with tricks that really impressed them. Such is the emphasis of this book.

The downside. In writing the book as this market, author Dave Taylor winds up creating the perfect manual for people who value style over substance. Because of that, the book will doubtlessly spawn a new generation of "cool" but ultimately pointless Web pages. A further annoyance is the almost total lack of formatting in the HTML snippets.

To no credit, the book covers a lot of ground, from basic Web design to more advanced features like tables, frames, and prescripting. The writing style is very personable, involving the reader immediately. Taylor also discusses common mistakes in code syntax and then explains why the complex didn't work as anticipated.

The CD-ROM that comes with the book includes both Netscape Navigator 4 and Microsoft Internet Explorer 4, and a number of shareware tests and utilities for creating "cool" Web pages.

Despite my reservations about the annoyance factor for more experienced users, this book is a potential gold mine for Web newbies who have been wondering, "How did they DO that?"

Sean Connolly is *SearchEngine* and CCM's *Lab Test Editor*.



Kingston announces PC 100-compliant memory

Kingston Technology Co. has announced its PC 100-compliant memory module family, designed for the new 100MHz memory bus architecture of Intel's new 440BX chipset.

Using 100MHz unbuffered Synchronous Dynamic Random Access Memory (SDRAM) components, the modules will be offered in system-specific configurations of 32, 64 and 128MB densities.

Prices for modules will range from US\$170 to US\$535, depending on configuration and capacity.

See <http://www.kingston.com>



IBM ThinkPad 770E

Compaq introduces 14.5-inch flat-panel monitor

Compaq Canada Inc. has introduced the 14.5-inch TFT450 Flat Panel Monitor, priced at \$2,832, along with two 17-inch CRT monitors — the Compaq 173 Color Monitor and the Compaq V73 Color Monitor, priced at \$972 and \$825, respectively.

Compaq says it expects to accelerate the transition of the standard business monitor size from 15 inches to 17 inches.

3Com Canada has small business OfficeConnect

3Com Canada of Burlington, Ont., has announced a 10-user version of the OfficeConnect ISDN LAN modem — an all-in-one access networking solution for small businesses or home offices with multiple users.

3Com says small businesses can simplify their networking by equipping their 10-user

Creative Technology adds powerful PCI audio systems

Creative Technology Ltd. has announced two new high-performance PCI audio systems aimed at the quality PC audio market.

The Sound Blaster PCI64 has an estimated street price of \$149.99, and the Creative Envoys Audio PCI sells for \$99.99. Also announced was the PCWorks FourPoint-Stereoed speaker set, aimed at optimizing the 3D sound projection ability of the PCI64.

According to Sam Wang Hsin, CEO and president of Creative, these new products are the

first in a series of upcoming PCI solutions from Creative that will leverage our expertise in audio to deliver truly innovative

two sound solutions."

Since establishing the de facto standard for computer audio with its Sound Blaster line of audio cards, Creative has gone on to develop one of the most impressive research and development capabilities in either the computer or consumer electronics industries. The new products reflect this capability, with impressive audio features at a modest price. The new PCI64 offers 64 voices of wavetable synthesis, support for two or four speaker output configurations, as well as the new PCWorks FourPointStereoed. The PCI64 uses very little of the PC's main processor power, relying mainly on its on-board chipset.

See <http://www.soundblaster.com>.

IBM adds ThinkPads

(NB) — IBM Canada Ltd. has introduced the ThinkPad 770E and ED, two new ThinkPad 386XD models, and the ThinkPad 600 line of notebook computers to the Canadian market.

Canadian prices for the ThinkPad 770E and 770ED start at \$6,699. The new 386XD models start at \$3,999. Prices for the new ThinkPad 600 series began at \$4,399.



IBM ThinkPad 386XD

Toshiba of Canada refreshes Libretto notebook line

Toshiba of Canada, Information Systems Group (ISC), has unveiled the 2.3-pound Toshiba Libretto 100CT as its next-generation ultra-light system. Priced at \$3,999, it includes a 166MHz Pentium processor with MMX technology, a 3.0GB hard drive and 32MB of RAM.

The Toshiba Tiera 760DD notebook has a Pentium II 266MHz processor, and 64MB RAM expandable to 192MB. It's priced at \$9,039.

The Satellite Pro 4900CDT (\$5,849) includes a 233MHz Pentium II and features a 13.1-inch TFT display. The Satellite Pro 4900XCDT (\$6,589) is powered by a 266MHz Pentium II, and boasts a 13.3-inch TFT display. Standard with both systems are: 32MB RAM, a 3.4GB hard disk drive, and a 20X CD-ROM.

See <http://www.toshiba.ca>.

IOS ships Auto Switch surge protector

International Office Systems of Richmond, B.C., is shipping the Auto Switch surge protector, designed to work with the "sleep" mode in modern PCs. The product saves energy, plus wear and tear on computer equipment. When the CPU is plugged into the master outlet, it also switches off peripherals plugged into the three switched outlets. Two outlets on the unit provide a continuous power supply for anything that might need power at all time.

Suggested retail price is \$49.95. Call (800) 303-1100.





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Gene Roe

Ditek appoints VP

Richmond Hill, Ont.-based Ditek Software Corp., a developer of professional computer-aided design and drafting (CADD) software for PCs and workstations, has appointed Gene Roe as vice-president, business development.

Based in the Monroeville, N. H., office, Roe will be responsible for expanding Ditek's worldwide focus on building relationships with developers of geographic information systems (GIS). He will also lead the company's U.S. operations.

Roe was the founder and former president of MPN Components, a digital mapping and global positioning company, bringing 16 years of experience in the GIS industry to Ditek. He also worked for GeoDink as director of mapping products, and led GIS projects for the Government of Canada's Department of Public Works and Government Services. He holds a Ph.D. in engineering systems from the University of New Hampshire, a master's degree in civil engineering, and a bachelor of science in civil engineering.

"Right now Ditek is the one organization that is at an ideal position to capitalize on the rapid changes in the industry, and I look forward to being part of the company as it expands into new territory," said Roe, in a statement.

Symantec vice-president alts on Archer's board

Archer Enterprise Systems Inc. (Archer ES) has appointed Christopher Chiles, vice-president of Symantec's Remote Productivity Solutions Business Unit, to its board of directors.

Chiles is currently responsible for the worldwide product development business for Symantec's pcAnywhere, WinFax and ACT! Previously, Chiles served as general manager of Symantec's Remote Access Business Unit

based in Melville, NY, where he managed the development, testing, marketing and support of all remote communications products.

Chiles became chairman of the board for Archer, said, in a statement. "Chiles's involvement will help to solidify the strategic partnership between Archer Enterprise Systems and Symantec, as the two companies work together to develop products for the growing enterprise connect management market place."

Prior to his work at Symantec, Chiles was national manager, systems engineers, at Unify Corp. and senior program analyst with Computer Associates. He earned a bachelor of computer science from the State University of New York and studied executive training at the Wharton School of Business. He has more than 15 years of computer industry experience, and holds several copyrights for software innovation.

PC Docs Inc. gets president

Toronto-based PC Docs Group International Inc. has announced Brian Zangle as the new president of its subsidiary, PC Docs Inc.

The company is a provider of enterprise document management solutions. Zangle will report directly to Ralph Oster, chairman and CEO of PC Docs Group International.

A three-year veteran of the company, Zangle most recently held the position of vice-president of North American sales and was a key member of the senior management team charged with developing and implementing PC Docs' business strategy. Prior to that he was vice-president of Eastern operations. Zangle served for several years with Interact Inc., another document management vendor, and was with Digital Equipment Corporation for 16 years.

Zangle will focus on the company's worldwide operating plans and marketing strategies, on expense control, and on growing profits and revenues from the company's new Internet-based and client/server software.

Scott Butterworth joins ALEA

Richmond Hill, Ont.-based The ALEA Group has hired Scott Butterworth as director of retail sales.

In that position, he will work with high-technology clients to develop sales merchandising, sales demonstrations and event marketing programs. ☐

Calendar

June 8-8 — **Thunder**
July 20-21 — **Calgary**
Aug. 10-11 — **Montreal**

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July 8-10

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Nifty Numbers

A Research Group and a Poll

Encryption Software *What actually attracts buyers?*

by Leslie Anne Arrand and Dorian Leps

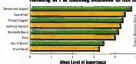
Encryption software encompasses such technologies as firewalls, PINs, passwords, cryptographic algorithms and secured gateways. Specifically, encryption refers to the translation of one character string into another by means of a cipher, translation table, or algorithm. The translated information thus becomes meaningless to anyone without the decoding mechanism. Encryption is a hot topic. The need to secure your network from both external and internal users has resulted in data security becoming a critical element in an organization's information technology infrastructure plan. It has become important to all organizations, large and small.

Companies involved in the design of encryption software have been experiencing a boom. With more and more technology companies becoming involved in this growing area of technology, how is a new company going to distinguish itself from its competitors?

A recent Business study of 100 North American companies from many different sec-

tors, including financial, pharmaceutical and healthcare, assessed the need for enterprise-wide security products and services, as well as determined the interest of the various vendors in this market. One element of the study rated purchasing criteria for enterprise-wide security products. Based on a scale of 1 to 5, where "1" is "not at all important" and "5" is "very important," respondents in the study were asked to rate certain criteria relating to purchasing decisions. The following chart displays the results. As in many areas of technology, the most critical element in the decision-making process for purchasing enterprise-wide security products are service and support, followed by ease of use and product support. Technical features are rated fourth. Unfortunately for those companies trying to distinguish themselves by their capabilities, brand name is rated the lowest

Ranking of Purchasing Decision Criteria



among the list of purchasing criteria.

New companies will continue to emerge in this exciting sector of the information technology industry, especially when on-line purchasing increases in popularity. In order to be successful in this area of technology, companies will have to develop top-of-the-line products that are backed up with a high level of service and support. The good news is that due to the lower level of importance placed on brand name, the market is open to all. ☐

Leslie Anne Arrand and Dorian Leps are consultants at The Business Group Inc. in Ottawa (<http://www.brgroup.ca>) — an international marketing and management consulting firm with a stated commitment to "Delivering competitive advantage to the IT industry." Phone: (613) 743-2282; or fax: (613) 743-4990.

Reader Poll

Last issue, we asked:

When it comes to YOUR customers, what is the HIGHEST criterion for their ink-jet purchases?

You said:

11%	Quality of black printing	9%	Speed of printing
35%	Quality of color printing	46%	Price of the printer.

This issue:

Advances in CRT display technology have been creeping along, and we're now seeing larger monitors with good-quality display of images hitting the market at attractive prices.

Our question to you:

For your customers, which is the MOST important concern when it comes to buying a computer monitor?

- ☐ Easy on-screen controls
- ☐ A very low price
- ☐ Energy-saving technology
- ☐ A flat-screen display
- ☐ A big screen (17 inches or more diagonally)

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